***Sent via electronic mail***

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**Re: Scoping Comments on the Proposed Eastern Collier Multi-Species Habitat Conservation Plan**

Dear Mr. McDonald:

On behalf of the Center for Biological Diversity, South Florida Wildlands Association, Sierra Club Florida, and The Humane Society of the United States, thank you for your time and consideration of these scoping comments in connection with your review of the proposed Eastern Collier Multiple Species Habitat Conservation Plan ("ECMSHCP") for its impact on the Florida panther ("panther"), Florida scrub jay ("scrub jay"), northern crested caracara ("caracara"), wood stork, red-cockaded woodpecker ("woodpecker"), Everglades snail kite ("snail kite"), American alligator ("alligator"), eastern indigo snake ("indigo snake"), gopher tortoise, and Florida bonneted bat ("bonneted bat"). Due to the vulnerability of these species and the inadequacies of the applicant's proposed ECMSHCP as outlined blow, we respectfully request that the application for the Eastern Collier ECMSHCP be denied, as it fails to provide sufficient information to evaluate the project's impact on listed species and their habitat and it would further fragment and degrade vital habitat for listed species.

## I. Background

In 2002, Collier County established the Rural Land Stewardship Program ("RLSP") through the cooperative efforts of various interested parties including landowners, local and state agencies, and conservation groups. The RLSP was established to create "compact forms of residential and commercial development on lands with relatively low natural resource values," while setting aside more environmentally vulnerable areas for protection, some of which include panther habitat.

On June 4, 2010, U.S. Fish and Wildlife ("FWS" or "Service") received the application for the ECMSHCP from the Easter Collier Property Owners ("ECPO") for an Incidental Take Permit ("ITP") under Section 10 of the Endangered Species Act ("ESA"). The proposed ECMSHCP is a part of a 177,000-acre planning area, 45,000 acres of which are to be developed for residential,

commercial, mining, and other uses, with 107,000 acres to be designated as 'preserve' land "in order to generate sufficient stewardship credits,"[1] for the development project. The ECPO own roughly 85 percent of the land in the area proposed for development.

The ECMSHCP is to be located in northeastern Collier County, completely surrounding the town of Immokalee. It is bordered to the south by the Florida Panther National Wildlife Refuge and the Big Cypress National Preserve; to the north and east is the Okaloacoochee Slough State Forest; and west of the proposed plan area is the Audubon Corkscrew Swamp Sanctuary, thus placing it in key panther habitat.

While the ECMSHCP plans to limit development to a 45,000-acre development cap, the lands in the action area are not exclusively owned by the applicants; and landowners, including ECPO, may pursue development outside of the ECMSHCP resulting in additional impacts. Therefore, it is important to note that the ECMSHCP does not provide a complete vision of development for Collier or Hendry counties.

The applicants seek to include under the ITP activities that have previously taken place within the ECMSHCP area and are "planned to continue," including agriculture, ranching, infrastructure, oil and gas exploration, off-road recreation, hunting, fishing, and transportation infrastructure development for the conveyance of goods and services intrastate and interstate.[2]

## II. Regulatory Background

The ESA, by way of its "language, history, and structure . . . indicates beyond doubt that Congress intended endangered species to be afforded the *highest* of priorities," for protection under the law.[3] Thus, the ESA prohibits the "take" of a listed species.[4] Section 10 of the ESA provides an exception to the take prohibition by allowing the incidental take of a listed species where, "such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."[5] An ITP will not be granted unless the applicant submits a conservation plan to FWS, who receives delegated authority from the Secretary of the Department of Interior. FWS then makes a determination that the "impact which will likely result from such taking" and the "steps the applicant will take to minimize and mitigate such impacts . . . will not appreciably reduce the likelihood of the survival and recovery of the species in the wild."[6] Before issuing an ITP, FWS must make a finding that the application and conservation plan provide:

> (i) the taking will be incidental;
>
> (ii) the applicant will, to the maximum extent practicable, minimize and mitigate the impacts of such taking;

[1] Stantec Consulting Services, Inc., Eastern Collier Multiple Species Habitat Conservation Plan (June 3, 2010) [hereinafter ECMSHCP].
[2] *Id*.
[3] *Tennessee Valley Authority v. Hill*, 437 U.S. 153, 174 (1978) [emphasis added].
[4] To "take" a species is to "harass, harm, pursue, hunt, shoot, wound kill, trap, capture, or collect, or to attempt to engage in any conduct. 16 U.S.C. § 1532(19).
[5] 16 U.S.C. § 1539(a)(1)(B).
[6] 16 U.S.C. § 1539(a)(2)(A)(i–iv).

(iii) the applicant will ensure that adequate funding for the plan will be provided;

(iv) the taking will not appreciably reduce the likelihood of the survival and recovery of the species in the wild; and

(v) the measures, if any, required under subparagraph (A)(iv) will be met . . . .[7]

Prior to granting an ITP application, FWS must also undergo the consultation process with itself, as outlined in Section 7 of the ESA, to assure that granting the permit "is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species."[8] To jeopardize the continued existence of the species is to engage in an activity that either, "directly or indirectly . . . reduces appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species."[9]

When engaging in Section 7 consultation to determine whether the approval of an ITP will cause jeopardy, FWS is required to render its decision by evaluating the "best scientific and commercial data available."[10] If FWS determines the project is unlikely to cause jeopardy to the species or adverse modification of its habitat, the agency must: provide a statement specifying the impact of the incidental take on the listed species, outlining "reasonable and prudent measures" to minimize the impact from incidental take, and setting forth any conditions the agency and applicant must follow in accordance with the ITP.[11]

In addition to its obligations under the ESA, FWS also must satisfy its obligations under the National Environmental Policy Act ("NEPA") before it may issue an ITP. NEPA requires that all federal agencies carrying out "major Federal actions significantly affecting the quality of the human environment" produce a "detailed statement" that specifies the impact the proposed action will have on the environment, the adverse effects resulting from the proposed action that cannot be avoided, and any alternative actions.[12] Under NEPA, the agency must also consider "any irreversible . . . commitments of resources," such as the loss of a protected species caused by the proposed action.[13]

All Federal agencies must prepare an environmental impact statement, ("EIS") prior to engaging in "major Federal actions" that significantly affects the environment.[14] An agency's decision to grant a permit may constitute "major federal action," triggering the need for an EIS.[15]

[7] 16 U.S.C. § 1539(a)(2)(B). The term "measures" in subsection (v) refers to "any additional measures the Secretary may require as being necessary or appropriate for the purposes of the plan." *Id.* at § 1539 (a)(2)(A)(iv).
[8] *Id.* at § 1536(a)(2).
[9] *Florida Key Deer v. Brown*, 364 F.Supp.2d 1345, 1359 (U.S. Dist. Ct. S.D. Fla. 2005) (*citing* (50 C.F.C. § 402.02).
[10] 16 U.S.C. § 1536(a)(2).
[11] *Id.* at § 1536(b)(4)(A–C).
[12] 42 U.S.C. § 4332(C)(i–iii).
[13] *Id.* at § 4332(c)(iv–v).
[14] 42 U.S.C. § 4332(c).
[15] *Sierra Club v. Van Antwerp*, 526 F.3d 1353, 1361 (11th Cir. 2008).

## III. General Impacts to Species and Habitats

The ECMSHCP is legally and scientifically deficient because it does not evaluate the loss of habitat the project will cause; it does not evaluate human population growth and other regional development; it improperly relies on FWC to monitor take; it does not adequately evaluate climate change; and it understates the impact of land uses on the proposed preserve and development areas. Furthermore, the ECMSHCP fails to provide enough information to truly evaluate the effects of the project on listed species or their habitat, including the construction of roads and other infrastructure necessary to the proposed development of residential and mining on the portions of the project area slated for development. If the Service fully evaluated these impacts, it would not be able to authorize take of the listed species without determining that the take, in light of existing and planned projects, will jeopardize some of those species.

### A. Loss of Habitat

The ECMSHCP does not satisfy the requirements of a conservation plan in accordance with Section 10(a)(2)(A) of the ESA. The ECMSHCP indicates that 107,000 acres of land is to be set aside for habitat conservation within the project area; however, the plan also indicates that this area of land consists of lands used for several different ongoing activities including agriculture, ranching, oil and gas extraction, and other uses. This "matrix of native habitats and agriculture" and ongoing activities does not fulfill the requirements of Section 10(a)(2)(A) of the ESA, which requires that a conservation plan designate land "explicitly designated for habitat restoration, acquisition, protection, or other conservation purposes . . . ."[16] There is no guarantee that the lands will be set aside for conservation purposes and there is no indication of what percentage of the land will be devoted to these mixed uses and will be left as "native habitat" for the species.

The ECMSHCP claims that the proposal will prevent impacts that would have resulted from more intensive uses or development of the land;[17] however, it is unclear what percentage of the 107,000 acres is presently used or usable by the species, and what percentage of the 107,000 acres are wetlands that would require a 404 Clean Water Act application for development anyway.

A comparison of the land use types and proposed project show that the proposed preserved lands would result in further fragmented and degraded habitat. For example, the land proposed for development on the southeast side of Immokalee would completely cut off migration between southern and northern habitat. It is difficult to determine the size of the proposed corridor to the east of Immokalee, but it would have to be large enough with enough of a buffer to facilitate the heavy flow of panthers that seek to migrate north from the southeast corner of the project area. Further, it is unclear what percent of the 107,000 acres are not usable for the listed species. While the water and wetlands may provide valuable ecosystem service benefits, they should not be calculated as part of direct conservation lands for listed species that do not directly use those lands.

[16] 50 C.F.R. § 17.3
[17] ECMSHCP.

This project will impact at least 45,000 acres of prime habitat for listed species.[18] The leading cause of extinction is habitat loss (Harris 1984, Meffe 1997), and native habitats in Florida are rapidly disappearing (Kautz 2001 at 56). This has resulted in the extirpation or extinction of 13 vertebrates over the last 150 years (Kautz 2001 at 56). Habitat loss and fragmentation, coupled with human encroachment, have resulted in populations of species that are increasingly isolated from each other (Dobey 2002 at 68). Large mammalian carnivores, like the Florida panther, are particularly vulnerable to habitat loss and fragmentation because of their relatively low numbers, large home ranges, and interactions with humans (Noss 1996 entire, Woodroffe 1998 entire). Their low fecundity and long generation times result in reduced levels of genetic variation (Roekle 1993 entire, Lu 2001 entire). Habitat loss and fragmentation can lead to increased mortality (Jules 1998 entire); reduced abundance (Flather 2002 at 40-56); disruption of the social structure of populations (Ims 1999 at 839-849, Cale 2003 entire); reduced population viability (Harrison 1999 at 225-230, Srikwan 2000 entire, Cale 2003 entire, Lindenmayer 2006); isolated populations with reduced population sizes and decreased genetic variation (Frankham 1996 entire). Loss of genetic variation may reduce the ability of individuals to adapt to a changing environment; cause inbreeding depression (Ebert 2002 entire); reduce survival and reproduction (Frankham 1995 entire, Reed 2003 entire); and increase the probability of extinction (Saacheri 1998 entire, Westmeier 1998, Kramer-Schadt 2004 entire, Letcher 2007 entire, Ruiz-Gutierrez 2008 entire, Sherwin 2000).

A 2009 study concluded the anthropogenic influences—primarily road density and vehicular traffic—can substantially affect the population dynamics of large carnivores with large home ranges, like the Florida panther (Hostetler 2009 entire). Habitat fragmentation and anthropogenic barriers to movement have limited the dispersal capability of species, reducing gene flow among populations and resulting in genetically distinct populations (Dixon 2007 at 455-464). Large carnivores may be much more susceptible to losses in genetic variation due to habitat fragmentation because of their large home ranges, low population densities, and long generation times (Paetkau 1994 entire, Johnson 2001). Isolation is reinforced when travel between subpopulations is limited due to significant barriers, such as high-volume roads (Paetkau 1997 entire, Mader 1984 entire, Brody 1989, Proctor 2002 entire, Voss 2001 entire, Keller 2003 entire, Gerlach 2000 entire, Trombulak 2000 entire, Coffin 2007 at 396-403). Thus roads and other anthropogenic obstacles cans substantially reduce gene flow among populations (Dixon 2007 at 455-464, Kyle 2001 at 343-346, Walker 2001 entire, Ernest 2004).

The ECMSHCP does not provide sufficient information to evaluate the effect of the loss of habitat on the species. It does not detail with sufficient specificity where and what kind of development will occur. Moreover, it impermissibly discounts the fact that the so-called preserved lands are being used in ways that impact listed species. The ECMSHCP paints itself as seeking take authorization for 45,000 acres of development, when in reality it should be seeking take authorization for activities occurring within the entire project area.

[18] The project would also authorize impacts to 107,000 acres of so-called “preserved” lands with uses that have varied levels of impact to species and their habitat.

## B. Population Growth and Other Nearby Development

A leading cause of habitat loss is human population growth and corresponding land uses. A 2000 analysis of potential ecological connectivity in Florida found that only about half the land identified for habitat connectivity was publically owned and managed (Hoctor 2000 at 984-999). Meanwhile, *Florida 2060: A Population Distribution Scenario for the State of Florida* predicts Florida's population will grow by 49 percent by 2060. The FWC's *Wildlife 2060: What's at stake for Florida?* estimates that such population increases could result in the conversion of 7 million acres from rural and natural to urban uses (Cerulean 2008 at 2). It predicts that nearly 3 million acres of existing agricultural lands and 2.7 million acres of native habitat will be claimed by roads, shopping malls and subdivisions; 1.6 million acres of woodland habitat may be lost; wetland habitat may become more isolated and degraded; 2 million acres of lands bears depend on may disappear; and gopher tortoises may lose a fifth of their existing range (Cerulean 2008 at 4). While Florida is projected to increase its population statewide by 50% by 2060, Collier County is projected to grow from 251,377 residents in 2000 to 963,051 in 2060, and Hendry County is projected to grow from 36,210 residents in 2000 to 79,468 in 2060 – outpacing the expected statewide average at 73% and 54% respectively (Zwick 2006).

Large-scale development is planned for Hendry and Collier counties (and adjacent Lee County):

- Florida Power and Light Hendry Clean Energy Center (proposed 3,750 MW gas-fired electrical power plant), Hendry County: The company purchased an initial 3,000 acres for this project and has recently acquired an additional 4,000 acres adjacent to the original purchase. The plant would be located in completely rural land known to be excellent Florida panther habitat. It is wholly inside the proposed "Panther Glades" Florida Forever Project. When completed, the Hendry power plant will be among the three largest fossil fuel power plants in the United States (Fleshler 2015b at 1-2, Beltz 2015 at 1).
- Town of Big Cypress (recently changed to "Rural Lands West" pending a specific project name) in Collier County: This proposed 4,000 acre development is part of the 200,000 acre Rural Lands Stewardship Area (RLSA) of eastern Collier County. Other residential and commercial developments within the RLSA are likely as that is the purpose of the stewardship area. The Rural Lands West project is adjacent to and just west and north of the Florida Panther National Wildlife Refuge. Its southern boundary is just north of the Picayune Strand State Forest. This entire region is extremely important habitat for Florida panthers (Collier 2015 at 1-3).
- WildBlue (residential development) Lee County: These 2,960 acres of currently undeveloped land lie east of Florida Gulf Coast University between Corkscrew and Alico Roads (Private 2016 entire, Doane 2015 at 1-3).
- Corkscrew Farms (residential development) Lee County: This 1,300 acre development lies further east on Corkscrew Road from the WildBlue development referenced above. It is surrounded by the Corkscrew Regional Mitigation Bank to the north and the Corkscrew Regional Ecosystem Watershed Flint Pen Strand to the South. In addition to direct habitat destruction, both this project and WildBlue will greatly increase traffic on

Corkscrew Road and presumably Florida panther road mortality (Cameratta 2010 at 1-11, Smith 2015 at 1, Doane 2015 at 1-3).

- SR 82 widening: This project includes 23 miles of road widening in Lee and Collier Counties. The road runs north of and adjacent to important public lands such as the Wild Turkey Preserve, Corkscrew Mitigation Bank, and Pepper Ranch Preserve (FDOT 2016b at 1).

- SR 29 widening: An 18 mile expansion from Collier County to Hendry County, this road widening project is adjacent to or near major public lands— e.g. Spirit of the Wild Wildlife Management Area and the Okaloacoochee Slough State Forest —both of which constitute important Florida panther habitat. The project report provides the following projection of increased traffic: "Traffic volumes on S.R. 29 are projected to increase from a current volume of 6,200 vehicles per day to 23,800 vehicles per day by the year 2035 as documented in the project traffic report" (FDOT 2016a at 1).

- Snake Road widening, Hendry County: This plan is for an approximately 8-mile expansion inside the Big Cypress Seminole and Big Cypress Miccosukee Indian Reservations. This road cuts across an important wildlife corridor connecting the Big Cypress National Preserve to public and private lands in Southeast Hendry County and the Southwest corner of Palm Beach County (e.g. the Rotenberger and Holey Land Wildlife Management Areas) (Blackhouse 2011 at 1).

- Town of Babcock Ranch: This project, which recently broke ground, covers 18,000 acres just north of the Caloosahatchee River and east of SR 31, and it proposes approximately 20,000 new homes. The project, coupled with additional development that is likely to occur in the future, could severely restrict potential expansion of the Florida panther beyond the Caloosahatchee River. The project lies at the nexus of the Babcock-Webb Wildlife Management Area, the Babcock Ranch Preserve, and the Fisheating Creek Wildlife Management Area. This is a currently existing wildlife corridor that connects (or could connect) Florida panther habitat. Its functionality as a corridor could be greatly diminished by the completion of this project now in progress (Kitson 2016 at 1-2).

- Burnett Oil Seismic Survey (Burnett 2014 at 1-7): This project plans to utilize "Vibroseis" (approximately 60,000 pound) trucks across many miles of the Big Cypress National Preserve. Burnett has leased approximately 235,000 acres wholly inside the Big Cypress National Preserve. In its current application to the National Park Service, the company has asked for permission to conduct seismic testing on approximately 70,000 acres of the preserve (a permit from the Florida Department of Environmental Protection for this project has already been obtained). Oil field development involving miles of new oil-access roads and the construction of oil pads are expected to follow once oil-bearing rock is located. Noise, traffic, chemical odors, and other human disturbances are expected to increase greatly as a result of this seismic project and future oil development.

- Tocala LLC Seismic Survey (Passarella 2013 entire): This project encompasses 103,000 acres in Hendry and Collier Counties and utilizes over 8,000 shot holes (containing "pentolite" explosives) as an energy source for the proposed seismic survey. Just north of the Big Cypress National Preserve and the Florida Panther National Wildlife Refuge, the project also includes over 2,000 acres of the Dinner Island Wildlife Management Area.

This entire area, including the private ranches which will be used, is extremely important Florida panther habitat. Again, oil field development and increased habitat loss and human disturbance are expected to follow once probable oil deposits are located by the survey.

- Corkscrew Crossing: Proposed development in Lee County just south of Wildblue development. The site is entirely Primary Zone panther habitat, and if developed would result in nearly 200 acres being lost (including 166 acres of wetlands within a regional flowway). This area is a wildlife corridor and would facilitate Florida panthers to a planned underpass at Corkscrew Road that is considered minimization and mitigation measures for constructed road projects. As proposed, the development would destroy the functionality of this existing corridor and increase the likelihood of wildlife-human interactions.

The HCP also expressly does not include in its project area (despite being in the project area) the Hogan Island Quarry and the Immokalee Sand Mine. The Hogan Island Quarry is a 1,000 acre planned sand and limestone mine and Immokalee Sand Mine is an approximately 900 acre site that would be converted to a sand mine in Collier County off of State Road 82. Development of this parcel would sever a Florida panther Least Cost Pathway (LCP) that shows likely routes of this species as it moves across the landscape. A proposed "wildlife corridor" on site is very narrow, only about 600 feet wide, which is far narrower than biologists believe would be functional.

FWS must consider the synergistic and cumulative effects of these planned nearby projects, along with all past land use projects.

### C. Reliance on FWC to Monitor

The applicants proposed that FWC monitor the implementation of the HCP. In the last twenty years, state and federal laws have changed in ways that undermine the longtime survival of the Florida species. State regulatory failures include the unenforceability of the Florida Black Bear Management Plan, the failure of the state to acquire and protect land, inadequacies in Florida Department of Environmental Protection and Water Management District permitting, ineffective mitigation banks, and weakened state growth management laws and state land management plans. Federal laws have also changed or weakened in the last 20 years with respect to Florida black bear habitat protection, including regulations to protect national forests, national parks, and national preserves. It would be unwise, and unethical given one of the applicant's position as an FWC commissioner, to rely on FWC to monitor the HCP.

### D. Climate Change

The ECMSHCP treats climate change as a potential "changed circumstance" in its evaluation of the effects of the project, stating that there will be no effects or that the effects are unknown or not relevant on the time scale of the project. The Service must consider all available climate change science in evaluating the effects of the project.

Climate models project continued warming in all seasons across the southeast United States and an increase in the rate of warming (Karl 2009 at 111-113). The warming of air and water temperatures projected for the southeast will create heat-related stress for fish and wildlife. Climate change will alter the distribution of native plants and animals and will lead to the local loss of imperiled species and the displacement of native species by invasive species (Karl 2009 at 113). Concerning the effects climate change is expected to have on southeastern environments, Karl (2009 at 115) states, "[e]cological thresholds are expected to be crossed throughout the region, causing major disruptions to ecosystems and to the benefits they provide to people."

Climate change will increase the incidence and severity of both drought and major storm events in the southeast (Karl 2009 at 111-116). The percentage of the southeast region experiencing moderate to severe drought has already increased over the past three decades. Since the mid-1970s, the area of moderate to severe spring and summer drought has increased by 12 percent and 14 percent, respectively. Fall precipitation tended to increase in most of the southeast, but the extent of region-wide drought still increased by nine percent (Karl 2009 at 111). Both drought and severe storms could threaten the Florida black bear with habitat alteration, altered vegetation, and altered prey base and food availability (Seager 2009 entire).

The warming climate will likely cause ecological zones to shift upward in latitude and altitude and species' persistence will depend upon, among other factors, their ability to disperse to suitable habitat (Peters 1985 entire). Because of some of the species' already limited range and the high degree of development in the surrounding area, there is likely no suitable habitat where the species could disperse, making climate change a dire threat to its survival.

Global average sea level rose by roughly eight inches over the past century, and sea level rise is accelerating in pace (Melillo 2014 at 373). As summarized by the Third National Climate Assessment, "Since the late 1800s, tide gauges throughout the world have shown that global sea level has risen by about 8 inches. A new data set shows that this recent rise is much greater than at any time in at least the past 2000 years. Since 1992, the rate of global sea level rise measured by satellites has been roughly twice the rate observed over the last century, providing evidence of additional acceleration" (Melillo 2014 at 44). Many areas of the Southeast Atlantic and Gulf of Mexico coasts have experienced significantly higher rates of relative sea-level rise than the global average during the past 50 years (Karl 2009 at 37). Large regions of Florida have elevations at or below 3 to 6 feet, making these areas particularly vulnerable to sea-level rise and flooding (Weiss 2011 entire, Strauss 2012 at 3-4).

According to the Third National Climate Assessment, global sea level is projected to rise another 1 to 4 feet by 2100, with sea-level rise of 6.6 feet possible (Melillo 2014 at 589). Sea level rise could increase by another 6 inches in just the next decade (Melillo 2014 at 400). In its 2012 sea-level rise assessment, the National Research Council similarly estimated global sea-level rise at 8 to 23 cm by 2030, 18 to 48 cm by 2050, and 0.5 m to 1.4 m by 2100 (NRCNA 2012 at 4). The effects of sea-level rise will be long-lived. Scientists estimate that we lock in 8 feet of sea-level rise over the long term for every degree Celsius (1.8 degrees Fahrenheit) of warming (Levermann 2013 at 13746).

Regional projections for Florida also indicate that sea level rise of three to four feet or more is highly likely within this century. The Southeast Florida Regional Climate Change Compact Counties—Monroe, Miami-Dade, Broward, and Palm Beach counties—released the Southeast Florida Regional Climate Change Action Plan in October 2012, which included a detailed "Unified Sea Level Rise Projection" for south Florida. The sea level rise projections for south Florida are similar what has been estimated globally by the National Research Council: 8 to 18 cm (3 to 7 inches) by 2030, 23 to 61 cm (9 to 24 inches) by 2060, and 48 cm to 1.45 m (19 to 57 inches) by 2100 (SFRCCC 2011 at 9-10).

Increasingly intense storms and storm surge pose additional climate threats to coastal wildlife species in Florida. Studies have found that the frequency of high-severity hurricanes is increasing in the Atlantic (Elsner 2008 at 92-94, Bender 2010 at 454-458, Kishtawal 2012 at 1-6), along with an increased frequency of hurricane-generated large surge events and wave heights (Grinsted 2012 at 19601-19604, Komar 2008 entire). The risk of extreme storm surges has already doubled as the planet warms, and these events could become 10 times more frequent in the coming decades (Grinsted 2012 entire). High winds, waves, and surge from storms can cause significant damage to coastal habitat. When storm surges coincide with high tides, the chances for damage are greatly heightened (Cayan 2008 at 557). As sea levels rise, storm surge will be riding on a higher sea surface, which will push water further inland and create more flooding of coastal habitats (Tebaldi 2012 entire). For example, one study estimated that hurricane flood elevations along the Texas coast will rise by an average of 0.3 meters by the 2030s and 0.8 meters by the 2080s, with severe flood events reaching 0.5 meters and 1.8 meters by the 2030s and 2080s, respectively (Mousavi 2011 entire).

Coastal species face significant risks from coastal squeeze that occurs when habitat is pressed between rising sea levels and coastal development that prevents landward movement (Scavia 2002 at 17-18, Fitzgerald 2008 at 601-634, Defeo 2009 at 6-7, LeDee 2010 entire, Menon 2010 entire, Noss 2011 entire). Human responses to sea-level rise including coastal armoring and landward migration pose significant risks to the ability of species threatened by sea-level rise to move landward, if other suitable habitats were even available (Defeo 2009 at 1-9). Projected human population growth and development in Florida may thus threaten the species with coastal squeeze (Zwick 2006 entire).

FWS must consider the loss of habitat sea-level rise and climate change will cause and the pressure that will place on human and non-human populations and habitat, and how that will be effected by the proposed project.

### E. Proposed Land Uses in the Preserve and Development Areas are not Compatible and Require Additional Analysis

The ECMSHCP characterizes the use of the 107,000 acres for oil and gas development—among other things— as compatible with the habitat needs of listed species. However, all stages of oil and gas development can have negative effects on listed species and their habitats from geophysical exploration, to collisions with vehicles on roads servicing the wells, to the impacts of the well pads themselves. It also vaguely references the future use of the development land as resident or mining, two high-intensity land uses that have significant site- and species-specific

impacts. The ECMSHCP does not provide enough information to evaluate the effect of these land uses on the species or their habitats.

Adverse impacts on special-status species and their habitats can occur during geophysical exploration phases of oil and gas development.[19] Localized trampling of vegetation for surveying and increased vehicular traffic associated with nearby seismic investigations could lead to injury or destruction of sensitive species and their habitats. Potential effects from exploration operations could include increased displacement, increased risk of mortality, decreased reproductive succession, and increased stress levels from the noise and disturbance associated with nearby seismic survey activities (Sawyer et al. 2002). These effects could be caused by seismic crews traveling to access the area to be surveyed and by pedestrian travel along receiver lines. Additionally, the vibrations from the seismic operations could negatively affect species, as can trimming vegetation and using vehicles on existing roads during operations. Surface disturbance from vehicles could also cause localized soil compaction, which can increase runoff of surface waters and accelerate soil erosion (Duiker 2004, PSU 2009), ultimately degrading sensitive habitats. Listed species could be particularly impacted by the noise associated with seismic survey work, especially vehicle noise.[20] Onshore seismic operations are also known to impact wildlife by disrupting mating, nesting, spawning and migration routes, and creating new and long-term-use travel corridors for predators.[21]

In addition to an evaluation of the direct and disturbance-related indirect effects of the exploration activities to wildlife, there are a host of other indirect effects, such as vehicular mortality due to increased traffic, and the alterations of listed species' habitats due to the impacts to vegetation and hydrology.

The proposal also calls for allowing development in the form of residential and mining. These types of land uses have many known general impacts that require site and project specific evaluation. For example, the Hogan Island quarry, which is included in the project area but excluded from evaluation, will have many significant impacts on the human environment including: a) communication between surface waters and groundwater or drinking water sources; b) hydrological impact on the landscape of resulting deep lake pits; c) increase in number and intensity of traffic, particularly heavy mine trucks; d) proximity to conservation lands, mitigation lands, and wetlands; e) unknown cumulative effects of multiple mines in the same watershed/aquifer and draw down, sinkholes, and similar impacts.; f) unknown effect of post-mining landscapes on existing and new wildlife corridors; g) unknown effect of post-mining landscapes on downstream receiving waters; h) unknown effects of post-mining landscapes on aquifers and drinking water sources; i) unknown effects of post-mining landscapes on wetlands communities and shallow sub-surface flow in surrounding areas; and j) impacts on endangered or threatened species listed under the ESA. For that project alone, the Army Corps found that natural resource issues of concern in the Hogan Island Quarry assessment area include: a) wetland flow-ways; b) habitat corridors including those utilized by the Florida panther; c) hydrological impacts; and d) ecological restoration in downstream watersheds, such as Picayune

[19] Proposed 9B rule revisions at 262.
[20] *Id.*
[21] Onshore Seismic Exploration Best Practice and Model Permit Requirements at 7.

Strand. The ECMSHCP does not provide enough information to evaluate the impact of these future projects.

## IV. Impacts to Species

### A. Florida Panther

FWS originally listed the Florida panther as an endangered species in 1967.[22] To this day the panther remains, "the most endangered mammal in the eastern [United States] . . . [with] only 120-180 left, all in South Florida."[23] The proposed area of the ECMSHCP overlaps with the critically endangered and federally protected panther's habitat. FWS must require further studies and assurances that the proposed activities within the ECMSHCP will not harm the panther or jeopardize its recovery or survival.

Panthers have faced an uphill battle after their numbers declined to as few as 20-30 individuals.[24] Despite the relative success of a genetic restoration project, only "a single wild population in south Florida" exists and it is "all that remains of [the] species."[25] Development in south Florida has significantly increased in the area of suitable panther habitat and has led to increased panther mortalities from vehicle collisions, inbreeding, increased competition for food, and territorial disputes (Staletovich 2014).[26] For example, it is estimated that male panthers travel and patrol a territory of several hundred square miles (Tingley 2015). The panther's large territory-needs and limited habitat has led to intraspecific aggression, which was responsible for approximately 42% of panther mortalities between 1990 and 2004.[27]

The biggest threat to the panther's existence is habitat destruction, thus any proposed conservation plan must be consistent with the panther's recovery plan to ensure that the action undertaken does not undermine the species' chances of recovery. The recovery plan sets forth a goal to "maintain, restore, and expand the panther population and its habitat in south Florida and expand the breeding . . . population in south Florida . . . ."[28] The proposed ECMSHCP does not reflect the recovery plan's goal. The ECMSHCP appears to include plan-wide activities such as crop production; ranching and grazing; infrastructure repair and maintenance; oil and gas exploration and production; recreation; passive recreation; residential and commercial development; and transportation of people, goods, and services.[29] These ongoing activities will

[22] U.S. Fish & Wildlife Service, *ECOS: Environmental Conservation online System, Florida panther* (Puma(=felis) concolor coryi), http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A008.
[23] *Florida Panther: National Wildlife Refuge, Florida*, U.S. FISH & WILDLIFE SERV., http://www.fws.gov/refuge/florida_panther/.
[24] *Florida Panther: National Wildlife Refuge, Florida*, U.S. FISH & WILDLIFE SERV., http://www.fws.gov/refuge/florida_panther/wah/panther.html.
[25] *Id*.
[26] *Id*. In 2014, thirty panthers were killed, and the majority of these deaths resulted from vehicle collisions. *Id*.
[27] The Florida Panther Recovery Team & South Florida Ecological Services Office, U.S. Fish & Wildlife Serv., *Panther recovery plan* (Puma concolor coryi), U.S. FISH & WILDLIFE SERV., at 17 [hereinafter *Panther Recovery Plan*]; Tingley at 26.
[28] *Id.* at (IV)(1), 101.
[29] ECMSHCP.

negatively impact the panther, whose greatest threats are habitat destruction and fragmentation.[30] FWS has specifically identified several of these continuing uses as negatively affecting panther habitat in south Florida.[31]

The ECMSHCP is not consistent with the panther's recovery plan because the proposed area to be set aside for habitat conservation does not meet the requirements of a conservation plan in accordance with Section 10(a)(2)(A) of the ESA. The area of the proposed ECMSHCP is situated in an area of this prime panther habitat. The ECMSHCP indicates that 107,000 acres of land is to be set aside for the habitat conservation area within the 177,000 acre development; however, the plan also indicates that the proposed conservation area consists of lands used for many ongoing activities including agriculture, ranching, oil and gas extraction, and other uses. This "matrix of native habitats and agriculture" and the ongoing activities do not stand up to the requirements of Section 10(a)(2)(A) of the ESA, which requires that a conservation plan designate land "explicitly designated for habitat restoration, acquisition, protection, or other conservation purposes . . . ."[32] There is no guarantee that the lands will be set aside for conservation purposes and there is no specific information about what percentage of the land will be devoted to these mixed uses and what will be left as "native habitat" for the species. The panther's recovery plan indicates that the species is "dependent on maintaining, restoring, and expanding the panther population and its habitat in south Florida."[33] In fact, it is unclear what percent of the 107,000 acres is used or usable by the Florida panther.

Although the ECMSHCP reports that it seeks to minimize and mitigate impacts to the panther, applicants cannot satisfy that duty by taking otherwise undevelopable land (like wetlands) off the table for development. Furthermore, these mixed-use areas will not provide adequate habitat for the conservation of the species, and some of the proposed ongoing activities will likely increase tension between the species and human residents. A matrix of various land uses and habitats is not consistent with the panther's recovery plan, which specifies that the species "require[s] large contiguous areas" and that "habitat selection is related to prey availability."[34] Habitat fragmentation occurs when a species' habitat, which was once continuous, is broken up into small patches of land, "persisting like islands in a sea of degraded land" (Laurance 2010). It is a significant threat to the panther because it limits the panther's ability to travel and establish reproducing populations in other areas.[35] Additionally, fragmentation and loss of continuous habitat isolates individuals and populations of a given species from others of its kind and creates additional fringe areas where the species' habitat meets new development or intensified uses, creating additional "stressors such as human disturbance, invasive species and pollution" for the species.[36] As fragmentation continues, it creates dangerous situations when panthers try to cross

[30] *Everglades, Florida Panther: Species Profile,* NAT. PARK SERV., U.S. DEPT. OF INTERIOR, http://www.nps.gov/ever/learn/nature/floridapanther.htm.
[31] *Panther Recovery Plan* at viii.
[32] 50 C.F.R. § 17.3
[33] *Panther Recovery Plan* at 5.
[34] *Id*. at viii.
[35] Florida Fish & Wildlife Conservation Comm'n., *Florida PantherNet: Habitat Fragmentation,* http://www.floridapanthernet.org/index.php/handbook/threats/habitat_fragmentation1/#.Vk9Og4TkbzI [hereinafter *PantherNet*].
[36] *Habitat Loss & Degredation,* CAPITAL REGIONAL DISTRICT: BRITISH COLUMBIA, CAN https://www.crd.bc.ca/education/our-environment/concerns/habitat-loss-degredation.

roads or lands that have broken up their habitats, often in search of food or mates. Vehicular collisions are a significant cause of panther mortality that are attributable to habitat fragmentation.[37] The recovery plan also identifies availability of habitat, availability of prey, and human intolerance as "limiting factors" to the panther's recovery, all of which are likely to increase with a matrix of various land uses as proposed by the ECMSHCP.[38]

The panther is dependent on and actively selects hardwood and hammock type forested uplands largely because those habitats are suitable for its prey and hunting technique. The "continued uses" of agriculture, ranching, oil and gas exploration, and others, which are to continue within the 107,000 acres designated as protected lands, will modify panther habitat and destroy its prey's habitat. Further, planning for agricultural activities within an area designated for panther conservation will likely lead to increased intolerance of the species, especially in areas used for ranching and grazing as panthers have been known to target livestock as prey (Tingley 2015). Panther attacks on livestock have led to tension between the species and ranchers in south Florida and there is evidence of panthers being shot as a result of these interactions, especially with one of the applicants, Commissioner Priddy (Tingley 2015). To allow for ranching and cattle grazing on land which is intended to serve as a protected area for panthers is inviting this kind of tension to escalate and is contrary to the policies set forth in the panther recovery plan.

The proposed matrix of native habitats and agriculture, as opposed to lands set aside explicitly designated for the purpose of conservation, does not meet the definition or satisfy the requirements for a habitat conservation plan as required by Section 10(a)(2)(A) of the ESA. FWS should require clarification of—and the ECMSHCP should clarify—the total area that will be impacted from development, and such impacts should be confined to the 45,000 acres of "covered area" in the ECMSHCP because the activities identified in the plan as ongoing are not compatible with the conservation needs of the panther. A habitat conservation plan like the proposed ECMSHCP, which uses protected lands for various activities such as oil and gas exploration and agriculture, does not set aside and conserve land for the species.

Additionally, the ECMSHCP should seek to limit panther moralities resulting from vehicle collisions. Approximately 19% of mortalities are the result of vehicular collisions.[39] The Panther Recovery Plan includes efforts to improve road conditions, and thus reduce the incidence of panther mortality from vehicular collisions, by providing places for panthers and other wildlife to safely cross roadways and by adjusting speed limits.[40] The ECMSHCP indicates that the development project will include mitigation projects "where unavoidable impacts to panther habitat occur," and included in possible mitigation efforts is "locating and construction of panther crossings and fencing along local road segments."[41] Due to the high incidence of panther mortality from vehicle collisions, measures to avoid these accidents should be a part of the initial efforts taken under the ECMSHCP, and the applicant should have more specific measures to address the issue.

[37] *PantherNet* at 36.
[38] *Panther Recovery Plan* at ix.
[39] *Id*.
[40] *Panther Recovery Plan* at 66.
[41] ECMSHCP.

The panther habitat will be affected by the planned development within the proposed ECMSHCP. The increased development, human population, and vehicular traffic, along with the other proposed land uses within the ECMSHCP, including those uses within the 132,000 acres to be designated as "protected lands," will further contribute to the types of habitat impairment that are known to adversely impact the species. Frakes (2015) found that the presence of human populations, roads and agriculture have a strong negative effect on the probability of panther presence.

Of the areas in south Florida remaining for panther habitat, the lands located just north of Interstate-75, where the proposed ECMSHCP is to be located, are deemed to be the most suitable for the species.[42] Information from the National Park Service indicates that panthers from this part of Florida, "weigh more, are healthier, and successfully raise more kittens than panthers that live primarily south of the highway . . . ."[43] Panthers north of Interstate-75 have better access to larger prey than those south of the major roadway, largely because the areas south of the Interstate are predominately wetlands and the panther's primary prey, hogs and deer, are more common in drier upland areas.[44] Additionally, upland habitat such as pinelands and hardwood hammocks provide the panther with more suitable areas for resting and raising panther kittens.[45]

The adjacent Corkscrew Swamp-Camp Keais Strand is one of only a few major north-south natural corridors facilitating panther dispersal. Panther telemetry from radio-instrumented panthers and scientifically-established least-cost pathways ("LCPs") show that Florida panthers utilize these adjacent habitats.[46] Several LCPs from the Florida Panther National Wildlife Refuge to Corkscrew Regional Ecosystem Watershed converge into one pathway that runs through the project area. FWS has in the past found that the Camp Keais Strand is an important corridor facilitating panther dispersal and that the functionality of the corridor needs to be maintained to minimize road mortality and intraspecific aggression.

*Environmental baseline*

FWS' analysis of the environmental baseline will need to: 1) take into account the fact that there is currently not enough habitat available to support the existing panther population; and 2) analyze the impact of other projects in the area. When analyzing the impacts of a proposed project on listed species, FWS must consider the direct and indirect impacts added to the environmental baseline.[47] The environmental baseline includes "past and present impacts of all proposed Federal projects in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal consultation, and the impact of State or private actions which are contemporaneous with the consultation in process."[48] "Action

[42] *Everglades: National Park, Florida Panther*, NAT'L PARK SERV., http://www.nps.gov/ever/learn/nature/floridapanther.htm.
[43] *Id*.
[44] *Id*.
[45] *Id.*
[46] Least-cost pathways are routes that the Florida panther is most likely to utilize in moving between preserved lands.
[47] 50 C.F.R. § 402.14(g)(3).
[48] *Id.* § 402.04.

area" means "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."[49]

FWS will need to explain how the removal of any panther habitat will not impact the panther when the existing population demands more land than is currently available. FWS reports that the home range size for established, non-dispersing adults is 29,056–35,089 acres for females and 62,528–137,143 acres for males, with limited home range overlap among resident males The biological opinion for Hogan Island ("BO") states that to support an effective population size of 50 individuals (equating to 100-200 panthers), there would need to be 15,625–23,438 square miles, or approximately 10–50 million acres of habitat. Relevant to the impacts on the action area, the BO reviewed the types of potential panther habitat important for conservation. The BO stated that the Primary Zone is 2,270,711 acres and contains "lands important to the long-term viability and persistence of the panther in the wild"; the Secondary Zone is 812,157 acres and consists of "lands which few panthers use contiguous with the Primary Zone"; and the Dispersal Zone is 28,160 acres and is "the area which may facilitate future panther expansion north of the Caloosahatchee River."

FWS estimates that the Primary Zone is currently occupied and supports the breeding population of panthers, with the potential to support 71–84 panthers, the Secondary Zone could support 8–10 panthers without habitat restoration (and 25–30 panthers with habitat restoration), and the dispersal zone supports zero panthers—with the three (3) zones currently providing 3,111,028 acres of habitat for a total of 79–94 individuals. It also concludes that "lands in the Primary Zone are important to the survival and recovery of the Florida panther and sufficient lands need to be managed and protected in south Florida to provide for a population of 80 to 100 panthers, the population range defined as likely stable over 100 years, but subject to genetic problems."[50] FWS estimates that the land necessary to achieve its conservation goal of providing habitat for a stable, but not recovered, panther population, is 2,553,840–3,192,300 acres for 80–100 panthers.

Furthermore, Frakes (2015) determined that only 5,579 $km^2$ of suitable panther habitat remains in southern Florida, with 93.8% in the primary zone and 3.8% in the secondary zone, indicating that no further development can be allowed. Indeed Frakes concluded that "there is not enough adult panther (breeding) habitat remaining in south Florida to maintain one genetically viable population." FWS must explain how the removal of 45,000 acres of primary zone habitat will not jeopardize – reduce appreciably the ability of the panther to survive or recover – the Florida panther.

The Hogan Island BO notes that the most recent minimum population count totaled 115 individual panthers, with a population density of one (1) panther per 31,923 acres. Therefore, according to FWS' records, there is currently less habitat available than is necessary to support existing population numbers, to maintain what experts regard as an effective population, or to meet recovery goals. FWS must discuss the incongruity between its own records and that proposed panther habitat destruction, analyzing the effect of removing nearly 45,000 additional acres from panther use.

[49] *Id.*

[50] FWS concedes that the model it bases this assumption upon assumes no habitat loss or catastrophes (FWS at 2632).

FWS needs to provide a complete picture of its consultation history of the panther in the action area and analyze the impacts of those projects. The Hogan Island BO reports that from 1984 to 2003, FWS formally consulted on federal projects that resulted in impacts to 71,650 acres, concluding 32,718 acres were permanent habitat losses and 38,932 acres may continue to provide some habitat value to panthers. FWS reports that from 2003 to 2011, it formally consulted on projects affecting 25,146 acres of panther habitat. The BO discusses habitat loss for this timeframe in terms of its Panther Habitat Assessment methodology, but does not state in plain terms how many acres of habitat were permanently lost. The BO also reports that from 2000 to 2006, FWS informally consulted on projects with a total of 966.9 acres of habitat impact, and concedes information for informal consultation prior to 2000 is incomplete.[51] Notably, the BO does not report how many acres have been impacted by projects that proceeded via informal consultation from 2007 to date, though it acknowledges that "collectively they may have an effect" on panthers and panther habitat. The BO estimates that from 2005 to 2010, an additional 4,009 acres of habitat have been impacted that FWS did not consult on. FWS will need to explain how these other abovementioned projects impact panther habitat and the panther population, and it must factor those data into the environmental baseline.

For a species as imperiled as the panther, whose greatest threat is habitat destruction, these mixed-use areas will not provide adequate habitat for the conservation of the species. The panther is dependent on hardwood and hammock type uplands largely because those habitats are suitable for its prey. The "continued uses" of agriculture, ranching, infrastructure, oil and gas exploration, and others, which are to continue within the 107,000 acres designated by the applicant as protected area for the species, will adversely modify its habitat and the habitat its prey needs to survive. The matrix of native habitats and active uses—as opposed to lands set aside for conservation under perpetual easement—does not satisfy the requirements for an HCP as required by Section 10(a)(2)(A) of the ESA.

**B. Florida Scrub Jay**

FWS listed the Florida scrub jay as a threatened species under the ESA in 1987.[52] The species is endemic to Florida and requires specific habitat features with "well drained to excessively well-drained sandy soils… [and] oak-dominated scrub, or xeric oak scrub . . . [that is] adapted to nutrient poor soils, periodic drought, high seasonal rainfall and frequent fires."[53] Due to the scrub jay's particular habitat needs, the primary threats to its survival are habitat destruction, including both loss and fragmentation, and habitat degradation.[54]

[51] Informal consultation is "an optional process" that helps FWS and federal agencies determine whether formal consultation is necessary. If FWS agrees that the action is not likely to adversely affect listed species, consultation is terminated and no further action is necessary. 50 C.F.R. § 402.13(a).
[52] U.S. Fish & Wildlife Service, *ECOS: Environmental Conservation Online System, Florida scrub-jay* (Aphelocoma coerulescens), U.S. DEPT. OF INTERIOR, http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B082.
[53] U.S. Fish & Wildlife Service, *Florida Scrub-jay*, U.S. DEPT. OF INTERIOR, 2-264, https://www.fws.gov/verobeach/MSRPPDFs/FloridaScrubJay.pdf.
[54] *Id*. at 4-270. Approximately 70–80% of the scrub jay's habitat has been destroyed when compared to estimates of existing habitat prior to major settlement in Florida. *Id*.

The ECMSHCP indicates that scrub jays are currently within the development area.[55] The scrub jay is included in the ITP and HCP because of the ECMSHCP's proximity to a larger population in the interior Immokalee area, the existence of small patches of habitat within the plan area, and observations within the plan area.[56] The ECMSHCP's description of these "small remnants of degraded scrub habitat" does not clearly define where these scrub jay habitats are located. FWS should require the ECMSHCP to clarify the location of these habitat fragments. The ECMSHCP alludes to the existence of these patches of habitat as inconsequential because the scrub jay "requires a minimum territory area equaling approximately 12 acres of suitable habitat";[57] however, FWS's species recovery plan for the scrub jay proposes engaging in activities that would improve this degraded habitat, such as arranging for the protection of this habitat on private lands and maintaining habitat through prescribed burns and vegetation thinning.[58] Another goal in the recovery plan is to "[a]ttempt to maintain or establish habitat corridors between populations," which may be furthered or achieved through these fragmented patches of habitat.[59] Consequently, the ECMSHCP's conclusion that the patches of scrub jay habitat within the plan area are "inconsequential" is in conflict with FWS's goals for the species' recovery.

FWS should require the applicant to provide more information regarding the location of these patches of scrub jay habitat and any measures that will be taken to promote the conservation of the species. The ECMSHCP indicates that the "permit holder may mitigate the action by attempting to rehabilitate scrub patches"; however, the applicant has not indicated a specific plan to take do so. Therefore, the HCP does not provide all information required by law for this covered species.

### C. Wood Stork

FWS listed the wood stork under the ESA as an endangered species in 1984, and it is the only species of stork "regularly occurring in the United States."[60] In 2014, FWS upgraded the status of the species to "threatened" largely due to successful recovery efforts in Georgia.[61] Although wood storks have seen some improvements in their numbers overall, the species is still in decline, as evidenced by its numbers in Corkscrew Swamp, which until recently was considered "the most productive colony in the nation."[62] Wood storks are found primarily in Florida, Georgia, and parts of South Carolina; however, there have been occasional sightings in North Carolina and as far west as Mississippi.[63] It is suspected that the species migrates and spends its

[55] ECMSHCP.
[56] *Id*.
[57] *Id*.
[58] U.S. Fish & Wildlife Service, *Florida Scrub-jay Recovery Plan*, U.S. DEPT. OF INTERIOR, 13.
[59] *Id*.
[60] U.S. Fish & Wildlife Service, *Wood Stork Recovery Plan: Revised Recovery Plan for the U.S. Breeding Population of the Wood Stork*, http://ecos.fws.gov/docs/recovery_plan/970127.pdf, at 1 (Jan. 27, 1997) [hereinafter *Wood Stork Recovery Plan*].
[61] *Endangered and Threatened Wildlife and Plants; Reclassification of the U.S. Breeding Population of the Wood Stork From Endangered to Threatened*, 79 Fed. Reg. 37078 (June 30, 2014).
[62] National Audubon Society, Inc., *Audubon: Corkscrew Swamp Sanctuary, Wood Storks* (*Mycteria americana*) [hereinafter, *Audubon: Corkscrew Swamp*]. In the first decade of monitoring at Corkscrew Swamp, from 1958–1967, there was an average of 5,450 wood stork chicks a year, compared to the years 2003–2012, which experienced an average of 540 chicks. *Id*.
[63] *Wood Stork Recovery Plan* at 2.

winters in south Florida, as there is an influx of storks during winter months.[64] Wood storks can be observed in south Florida all year. Historically, the central and northern Everglades are among the areas where this population surge is most evident. Some years, the Everglades system has been documented to support approximately 55% of the entire U.S. population of the species.[65] Unfortunately, south Florida colonies have been plagued with multi-year nest failures in recent years.

The wetlands and flow-way located on the project site support downstream regional wetland systems, including the Camp Keais Strand, Florida Panther National Wildlife Refuge, and Fakahatchee Strand. FWS will need to calculate the loss of wetlands and other surface waters (jurisdictional and non-jurisdictional) that will result from the project and the effect that will have on the wood stork.

Both freshwater and estuarine wetland ecosystems may serve as suitable wood stork habitat.[66] Storks tend to nest in a variety of different trees depending on what is available within the habitat, including: cypress, black gum, southern willow, red mangroves, prickly pear cactus, Brazilian pepper, and Australian pine.[67] Wood storks require nesting sites located in standing water throughout the nesting season to protect the nest from predators.[68]

For foraging, it is critical that the storks have access to shallow, open water.[69] The species forages using tactilocation, a process where it wades through the water with its beak submerged and clamps down on prey, usually small fish, when they come in contact with its beak.[70] Storks require shallow waters to wade in and fairly dense stocks of fish to support a colony's feeding habits.[71] Storks' needs are somewhat less specific when it comes to roosting trees; although they look for similar sites as those used for nesting, they will roost in a greater variety of trees depending on the availability of food.[72]

The greatest threats to the wood stork's existence are the loss of adequate habitat for feeding, changes in water levels and hydrology (habitat modification), lack of nesting habitat, "human disturbance," and loss resulting from the adverse effects of pesticide and chemical contamination.[73] As wetlands are drained and filled—primarily for development and agriculture—the stork's habitat is irreversibly destroyed. Because of the stork's specific foraging and nesting needs, changes in hydrology resulting from developmental impacts, both direct and indirect, can have a major effect on the species' ability to survive in a given area. The nature of activities proposed to take place within the 45,000 acres of covered activities under the ECMSHCP and the ongoing activities that will continue in the 107,000-acre "protected" area, such as oil and natural gas production, agricultural activities, and recreational activities (active

[64] *Id*.
[65] *Id*.
[66] *Id*. at 3.
[67] *Id*.
[68] *Id*.
[69] *Id*. at 4.
[70] *Id*.
[71] *Id*.
[72] *Id*.
[73] *Id*. at 10–12.

and passive), will negatively impact the wood stork, especially in such close proximity to Corkscrew Swamp. The Corkscrew Swamp supports a large population of wood storks and is known as the "most productive colony in the nation" when the right hydrological conditions occur, so it is central to the species' Recovery Plan.[74]

The ECMSHCP does not contain sufficient information to address the needs of the wood stork, and it fails to identify with any specificity the impacts that are likely to result from the development. The plan discusses minimizing habitat impacts by focusing development in areas that have already been disturbed or that are not suitable habitat for the birds; however, the plan does not address any specific actions that will be taken to avoid, minimize, or mitigate the impacts to the species.[75] Instead, the ECMSHCP vaguely suggests further mitigation efforts could be taken to enhance and restore wetland habitats in certain circumstances, without specifically indicating what events might prompt those efforts or what enhancement or restoration techniques may be implemented.[76] This plan is not sufficient to meet the ESA's requirements for HCPs.

The ECMSHCP lacks sufficient information to identify the potential impacts to the wood stork and the anticipated take that will occur. Additionally, the ECMSHCP does not specify any specific measures that will be taken to conserve wood stork habitat. The species' recovery plan provides specific, affirmative actions that should be taken, such as restoring and enhancing habitat and providing protection for nesting sites, among other affirmative and proactive measures.[77] Despite this wide variety of actions the applicant could take to enhance existing wood stork habitat in accordance with the species' recovery plan to offset negative impacts, the applicant has failed to do include these kinds of actions in the plan. When reviewing the HCP's environmental impacts on wood storks, FWS should consider these deficiencies in the plan.

**D. Red-Cockaded Woodpecker**

The red-cockaded woodpecker was listed as an endangered species under the ESA in 1973.[78] The woodpecker nests exclusively in mature or old-growth pine forests and prefers longleaf pine trees but will also nest in other southern pines.[79] The species is the *only* type of woodpecker that carves cavities exclusively in living pine trees, whereas other species seek out dead trees to make their nests.[80] Generally the woodpecker seeks out mature pine trees, those 80 years old or older.[81] Often, older pines such as those preferred by the woodpeckers suffer from red heart disease,

[74] *Audubon: Corkscrew Swamp*.
[75] ECMSHCP.
[76] *Id*.
[77] Wood Stork Recovery Plan at 19–22.
[78] *Recovery Plan for the Red-cockaded Woodpecker* (*Picides borealis*), U.S. FISH & WILDLIFE SERV., ix (Jan. 27, 2003), http://ecos.fws.gov/docs/recovery_plan/030320_2.pdf [hereinafter *Red-cockaded Woodpecker Recovery Plan*].
[79] U.S. Fish & Wildlife Service, *Red–cockaded Woodpecker Recovery: Conserving the Nature of* America, U.S. DEPT. OF INTERIOR, http://www.fws.gov/rcwrecovery/rcw.html.
[80] *Id*.
[81] *Id*.

which causes the inner wood of the tree to soften.[82] The species often nests in clusters of trees, in family units called "groups."[83]

The red-cockaded woodpecker is considered a "keystone" species because the cavities they create in trees provide nesting habitat for "secondary nesters" that cannot excavate the cavities themselves.[84] These secondary nesting species benefit from the woodpecker's excavation efforts once the woodpecker no longer uses the cavity and in turn, the woodpecker's work benefits and contributes to the biodiversity of the pine forests where it is found.[85]

The proposed ECMSHCP does not adequately address the conservation needs of the species, nor do the applicants indicate they will pursue any of the measures outlined by the recovery plan. The principal threat to the woodpecker is a lack of suitable habitat largely because of the species' dependence on mature pine forests that are fire-maintained and have low mid-story cover.[86] Specifically, the species suffers from a lack of suitable habitat for foraging and too few trees to excavate for nesting.[87] The woodpecker is a particularly important species because of the benefits it provides to other species within the ecosystem and it is protected throughout its range.[88] The ECMSHCP fails to adequately address the habitat impacts from the proposed activities within the plan area.

Additionally, the ECMSHCP fails to provide sufficient monitoring provisions. The red-cockaded woodpecker's recovery plan requires extensive habitat monitoring and although there are no documented cavities or clusters in the area of the ECMSHCP, the close proximity of other nesting clusters and the potential for the species to appear within the MSCHP indicates that some habitat monitoring should be conducted within the ECMSHCP covered area.[89] The ECMSHCP merely indicates that it will avoid potential impacts by directing development to areas that have previously been disturbed.[90] However, over 5,000 acres of forested habitat may be destroyed for intense residential, commercial, and mining development. Like the scrub jay and wood stork, the ECMSHCP lacks sufficient information to identify the potential impacts and anticipated take of the red-cockaded woodpecker.

In addition to the Federal Recovery Plan, the Florida Red-cockaded Woodpecker Management Plan emphasizes three potential actions that could be taken in the ECMSHCP including: "providing quality foraging habitat for active clusters in existing populations…. Identify[ing] and secur[ing] private properties with existing or potential…habitat," and "[r]estor[ing] or

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[82] *Id*.
[83] *Id*. A cluster of cavity trees used by the woodpecker may include 1–20 or more trees over an area of 3–60 acres. *Id*.
[84] *Id.*
[85] *Id*.
[86] *Red-cockaded Woodpecker Recovery Plan* at 5.
[87] *Id*.
[88] U.S. Fish & Wildlife Service, *ECOS: Environmental Conservation Online System, Red-Cockaded woodpecker* (*Picoides borealis*), U.S. DEPT. OF INTERIOR, http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B04F.
[89] *Red-cockaded Woodpecker Recovery Plan* at 174–175.
[90] ECMSHCP.

creat[ing]…habitat in currently unoccupied areas."[91] The ECMSHCP does not indicate that any of these measures will be taken and does not take the active role in the conservation of the red-cockaded woodpecker. In light of the potential environmental impacts this project will have on the woodpecker, FWS should consider a wider range of alternatives that include increased conservation for the species.

### E. Everglades Snail Kite

The Everglades snail kite was first listed as an endangered species in 1967 under the predecessor to the ESA, the Endangered Species Conservation Act.[92] In Florida there is a single population of snail kites that ranges from the Everglades, Lake Okeechobee, Lake Kissimmee, and the St. Johns River.[93] The species has a specialized diet of nearly exclusively apple snails, and thus the snail kite's survival is directly linked to the availability of snails.[94] The survival of the snail kite is also intrinsically related to the water quality and hydrology of the wetlands the species calls home.[95]

As a result of its specialized diet, the snail kite requires habitat able to sustain a healthy population of apple snails. Typical snail kite habitat includes freshwater marsh and vegetated shoreline along both natural and man-made water bodies.[96] Ideal foraging conditions include areas of "[n]early continuous flooding of wetlands," with relatively open and clear vegetated areas to allow the snail kites to visually hunt for snails.[97]

The biggest threat to the snail kite's survival is the loss and depletion of wetland ecosystems, most of which have been lost to agricultural and urban development.[98] Historically, snail kites have relied extensively on the Everglades, and the species has suffered immensely from the hydrological changes to system.[99] In addition to impacting the availability of apple snails, significant water drawdowns also lead the snail kite to nest in vulnerable areas, making them more susceptible to disturbance from natural and human causes.[100] Although the biggest threat to snail kites has been the result of hydrological changes, there is also evidence of contaminant residues such as DDT, mercury, and PCBs, reported in individuals.[101] FWS places the greatest emphasis in its snail kite recovery plan on water management to prevent water drawdowns and

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[91] Florida Fish and Wildlife Conservation Commission, *Management Plan, Red-cockaded Woodpecker Recovery Plan*, 17-18 (Aug. 8, 2003) , http://myfwc.com/media/1355359/RCW_management_plan.pdf.
[92] U.S. Fish & Wildlife Service, *Multiple Species Recovery Plan for South Florida: Everglades Snail Kite*, Rostrhamus sociabilis plumbeus, U.S. DEPT. OF INTERIOR, 4-291, https://www.fws.gov/verobeach/MSRPPDFs/EvergladeSnailKite.pdf [hereinafter *Everglades Snail Kite Recovery Plan]*.
[93] *Id.*
[94] Everglades National Park, *Snail Kite: Species Profile*, NATIONAL PARK SERVICE: U.S. DEPT. INTERIOR, http://www.nps.gov/ever/learn/nature/snailkite.htm.
[95] *Id.*
[96] *Id.*
[97] *Everglades Snail Kite Recovery Plan* at 4-294.
[98] *Id.* at 4-302.
[99] *Id.* at 4-303.
[100] *Id.* at 4-304.
[101] *Id.* at 4-303.

"reducing nutrient loading," which leads to dense vegetation that makes foraging for snails much more difficult for the species.[102]

The proposed ECMSHCP does not contain sufficient information regarding potential impacts to snail kites or information regarding the measures to be taken to avoid those impacts for the conservation of the species. The ECMSHCP states that "[t]he primary mechanism involves extensive preservation of the regional wetland flow-way systems . . . the snail kite uses for foraging"; however, it does not identify any particular areas where these preservation measures will be undertaken on the property.[103] Further, the proposed 45,000 acre residential, commercial, and mining development, along with the ongoing, "plan-wide" activities the applicant proposes within the 132,000-acre protected area are likely to have impacts on snail kite habitat.[104] The ECMSHCP does not mention any concrete measures the applicants will take to address these potential impacts and indicates that depending on the impacts that occur, other mitigation efforts *may* be taken.[105] FWS's snail kite recovery plan points to a variety of active measures that can be taken to benefit and promote the conservation of the species, such as water management plans to prevent water-level drawdowns, water quality programs to prevent nutrient loading, and vegetation management programs. The proposed ECMSHCP does not adequately address impacts that are likely to occur from the proposed activities nor does it indicate the applicants will employ any of the measures prescribed by the species' recovery plans.

### F. Northern Crested Caracara

FWS listed the Audubon (or Northern) crested caracara as a threatened species under the ESA in 1987.[106] The species historically was found throughout peninsular south Florida in wet and dry prairie habitats featuring interspersed cabbage palm trees.[107] Now, the caracara has somewhat adapted to land use changes, using pasturelands and in some cases citrus and other agricultural lands in place of its natural habitat.[108] Still, caracaras nest almost exclusively in cabbage palms, and ideal habitat conditions for the species consists of these palms "surrounded by open habitats with low ground cover and low density of tall or shrubby vegetation."[109] The species is an opportunistic hunter, seeking out prey "on the wing, from perches, and on the ground."[110]

The primary threat to the species is habitat loss.[111] The majority of the caracara's habitat loss is attributable to agricultural and residential development.[112] In addition to habitat destruction, the

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[102] *Id*. 4-306. The plan also indicates that the species has benefited from the "control of aquatic weeds" but that such control measures involving spraying should not be performed in areas where the kite has nested in non-woody vegetation, as such spraying correlates with some nest collapses. *Id*.
[103] ECMSHCP.
[104] *Id*.
[105] *Id*.
[106] U.S. Fish & Wildlife Service, *Multiple Species Recovery Plan for South Florida: Audubon's Crested Caracara:* Polyborus plancus audubonii, U.S. DEPT. OF INTERIOR, 4-219, http://www.fws.gov/southeast/vbpdfs/species/birds/acca.pdf .
[107] *Id*. at 4-221–4-222.
[108] *Id*. at 4-222.
[109] *Id*.
[110] *Id*. at 4-223.
[111] *Id*. at 4-225.
[112] *Id*.

species has suffered from direct human impacts, including mortalities from vehicular collisions, traps, and intentional killings resulting from misplaced fear that the species preys on livestock.[113] FWS's recovery plan for the northern crested caracara outlines specific measures that should be taken to protect the caracara including, efforts to "create, restore, or expand occupied habitat wherever possible."[114] The plan further states that conservation goals may be met through the expansion of habitat in areas with individuals present, as well as restoration of habitat in vacant areas.

The ECMSHCP is not consistent with the species' recovery plan and does not include enough information related to the anticipated impacts to the caracara. The ECMSHCP refers to actions taken under the RLSP to protect pasture areas suitable for caracara habitat and that these areas contain breeding pairs, which do occur within the plan area; however, there is no indication of any current conservation measures taken within the proposed ECMSHCP area.[115] Rather, impacts from residential, commercial, and mining development will be directed to some of the same habitats that the caracara depends on for their survival. Further, the plan states that any measures taken for the conservation of caracara will be dependent on the types of impact that result from the development.[116] The ECMSHCP indicates that caracara have been documented in the plan area, including in areas where intensified development would be authorized; however, the applicant does not provide all caracara nesting locations within the ECMSHCP area and thus cannot adequately address what measures will take place within the proposed development area. Projects undertaken for the conservation of the species outside of the ECMSHCP or on lands not owned by the ITP applicants must not be included in the conservation plan, as the permit applicants are the only individual bound by the permit.

### G. American Alligator

The American alligator was listed as an endangered species in 1967.[117] The alligator gained status as an endangered species in response to a massive decline in individuals, most of which was attributed to hunting and habitat destruction.[118] In 1987, FWS determined that the species was recovered and removed it from the endangered species list; however, the alligator is still protected under the ESA as "threatened due to similarity of appearance," to the American crocodile.[119] Due to its status as a threatened species, FWS continues to regulate the hunting, trade, and any goods made from the species.[120]

Within its ecosystem, alligators are greatly valuable to other animals that share its ecosystem. They create "gator holes," depressions in the marsh that retain water in the dry season.[121] Other species, including snakes, birds, and fish, use the gator holes as a source of water during the dry

[113] *Id*.
[114] *Id*. at 4-234.
[115] ECMSHCP.
[116] *Id*.
[117] U.S. Fish & Wildlife Service, *American Alligator:* alligator mississippiensis, DEPT. OF INTERIOR, https://www.fws.gov/endangered/esa-library/pdf/alligator.pdf (Feb., 2008).
[118] *Id*.
[119] *Id*.
[120] *Id*.
[121] *Id*.

season or times of drought.[122] American alligators also play an important role in the native food webs as both predators and prey, linking aquatic and terrestrial food webs. Adult alligators are opportunistic feeders that prey on a wide range of species throughout their lives, including insects, mollusks, crustaceans, fish, amphibians, reptiles, birds, and mammals.[123] Small alligators serve as prey for many species, including the northern crested caracara and the eastern indigo snake.[124]

While included in the applicant's 2010 document, there is no mention of alligators as an affected species in the applicant's current proposed ECMSHCP. Because of the American alligator's essential role in eastern Collier County ecosystems, any impacts to the alligator should be considered when analyzing the environmental impacts stemming directly and indirectly from the ECMSHCP. Specifically, FWS should consider impacts to the quantity and quality of water associated with changes in land use, covered activities, and activities proposed to be permitted on land designated "preservation/plan-wide activities." Impacts could arise from the covered activities (development and mining) as well as the proposed activities on land designated "preserve/plan-wide activity" (agriculture, oil and gas exploration and development, and high-impact recreational activities). FWS must also consider the impacts of roadways and increased traffic associated with the proposed activities in the ECMSHCP, which can lead to road mortality, habitat fragmentation, and genetic isolation.

### H. Eastern Indigo Snake

FWS listed the Eastern indigo snake as threatened under the ESA in 1978.[125] Historically, the species was found throughout Florida, Alabama, Mississippi, and portions of Florida; however, the species is now only found within Georgia and Florida.[126] Eastern indigo snakes are more often "found in pinelands, tropical hardwood hammocks, and mangrove forests," as they are more inclined to upland habitats and ecosystems.[127] The most frequent types of habitat where the indigo is found includes "pine flatwoods, scrubby flatwoods, dry prairie, tropical hardwood hammocks, edges of freshwater marshes, agricultural fields, coastal dunes, and human-altered habitat"; however, the species needs a variety of these habitats to complete its life cycle.[128] The eastern indigo snake shares a special relationship with the gopher tortoise, which is critical in northern portions of the snake's range because it will take refuge in the tortoise's burrows to weather the cold.[129] This relationship is somewhat less critical in the milder south Florida climate where indigo snakes have been documented using manmade refugia and disturbed habitats.[130]

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[122] *Id*.
[123] NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia, http://www.natureserve.org/explorer.
[124] National Park Service, *Everglades National Park, Eastern Indigo Snake: Species Profile*, U.S. DEPT. OF INTERIOR, http://www.nps.gov/ever/learn/nature/easternindigosnake.htm [hereinafter *Everglades Eastern Indigo Snake*]; U.S. Fish & Wildlife Service at 4-223.
[125] U.S. Fish & Wildlife Service, *Multiple Species Recovery Plan for South Florida: Eastern Indigo Snake*, Drymarchon corasi couperi, U.S. DEPARTMENT OF INTERIOR, 4-567, http://www.fws.gov/verobeach/msrppdfs/easternindigosnake.pdf [hereinafter *Eastern Indigo Snake*].
[126] *Id*. at 4-568.
[127] *Id*.
[128] *Id*. at 4-568–4-569.
[129] *Everglades Eastern Indigo Snake*.
[130] *Id*.

The snakes are still known to use the underground burrows of these tortoises and other species in the region of the ECMSHCP.[131] Thus, the survival of the indigo snake is essentially tied to the health and survival of the gopher tortoise.

The eastern indigo snake was initially listed as threatened as the result of several activities including, habitat destruction and fragmentation, "over-collecting for the pet trade, and mortality from gassing gopher tortoise burrows to collect rattlesnakes."[132] Presently, the species is vulnerable to habitat destruction and fragmentation associated with "residential and commercial construction, agriculture, and timbering."[133] Development will continue to impact the eastern indigo snake because it permits increasing human populations in indigo snake habitat, which leads to an increased risk of snake mortality resulting from vehicular collisions and contact with property owners and domestic animals.[134] The indigo snake is also subject to harm from the bioaccumulation of pesticides in its prey, which results from the use of pesticides in agricultural and silvicultural activities, and from contact with rodenticide used to control rat populations within its range.[135]

Although the ECMSHCP provides general information about threats to the eastern indigo snake, it fails to provide sufficient information regarding the specific impact the proposed activities will have on indigo snakes. Because the plan does not clearly describe the types of activities and land uses permitted in specific sites within the covered area, it is nearly impossible to determine these impacts. Before FWS assesses the environmental impacts associated with the ECMSHCP, the applicants must clearly and specifically articulate what activities will occur in what locations, which will allow the agency to accurately consider all environmental impacts.

The ECMSHCP also fails to include sufficient measures to avoid, minimize, or mitigate negative effects on the species. First, the plan fails to employ sufficient avoidance measures. Second, the ECMSHCP's minimization and mitigation measures are weak, if not entirely ineffective. The sole "conservation goal" the ECMSHCP provides for the eastern indigo snake is "[p]reservation of native eastern indigo snake habitats within the areas designated for Preservation/Plan-Wide Activities and Very Low Density Use."[136] Although habitat destruction is a primary threat to the eastern indigo snake, the ECMSHCP fails to address many other important threats. For instance, the ECMSHCP fails to provide any measures to address habitat fragmentation, road mortality, and genetic isolation from a growing network of roads and increased traffic; the introduction of environmental pollutants from covered activities, including development, mining, and oil and gas development; and intentional killing of snakes associated with increased interface between developed and natural areas.

Moreover, the ECMSHCP's habitat-based conservation goal is weak and does not guarantee the overall activities in the HCP will not jeopardize the eastern indigo snake's existence. Although the ECMHCP estimates than 13,022 acres of native upland habitat will be designated

[131] *Id*. The use of gopher tortoise and other species' burrows by indigos is often considered taking "refuge." *Eastern Indigo Snake* at 4-572.
[132] *Eastern Indigo Snake* at 4-572.
[133] *Id*.
[134] *Id*.
[135] *Id*.
[136] ECMSHCP at 199.

"Preservation/Plan-Wide Activities" and "Very LowDensity Use,"[137] it does not explain why this alleged preservation is "consistent with [FWS's eastern indigo snake] recovery action plan," which requires "[e]xtensive tracts of wild land."[138] The ECMSHCP fails to disclose how much of the 13,022 acres currently support or are capable of supporting eastern indigo snakes. Moreover, many of the proposed uses for the land designated Preservation/Plan-Wide Activities and Very Low Density Use are contrary to the needs of the species and negate all conservation value for the eastern indigo snake. The plan permits "preservation land" to be used for crop cultivation, ranching and livestock operations, forestry and silviculture, recreation, and oil and gas exploration and production.[139] Land designed for Very Low Density Use may be developed for isolated residences, lodges, and hunting or fishing camps.[140] These land uses are not consistent with "wild land" required for eastern indigo snake protection. Certainly developing land for residences and agriculture is not consistent with maintaining wild land. In fact, conversion of land to agricultural uses is one of the prime threats to the eastern indigo snake.[141] The ECMSHCP itself recognizes that eastern indigo snakes are regularly killed in orange groves by pesticides, lawn mowers, and heavy equipment usage.[142] Additionally, the term "recreation" is undefined in the plan, making it vague enough to include land uses that are harmful to herpetofauna, such as use of off-road vehicles. In light of the uncertain conservation measures and inappropriate uses of land designated for preservation, the ECMSHCP fails to minimize and mitigate impacts to the eastern indigo snake such that it will not be placed in jeopardy by the project.

The ECMSHCP also fails to propose any surveying or monitoring measures, simply stating that no GIS data is currently available for Collier County or the HCP area but that several published data sources and verified observations place the snakes within and adjacent to the HCP area.[143] FWS's recovery plan for the eastern indigo snake highlights monitoring as an essential tool for attaining the snake's recovery.[144] The HCP area should be surveyed to determine the relevant locations and habitat use of eastern indigo snakes. The plan should also impose a monitoring plan for the life of the permit, which would allow FWS to identify severe population declines and take action.

Aside from considering the deficiencies in the ECMSHCP, FWS should also independently study the plan's impacts to the eastern indigo snake in its assessment of direct and indirect environmental impacts of the permitted actions. FWS should consider the impacts of the growing network of roads and increased traffic that will directly and indirectly result from the ECMSHCP. Though roads only account for a small area of landscapes, their influence can extend across large areas because they restrict dispersal and gene flow (Clark 2010). Transportation infrastructure fragments the landscape, isolating habitat and populations of animals and forcing them to cross roads in an effort to evaluate and access resources, mate with members of other populations, or escape unfavorable circumstances. If snakes cannot

[137] *Id.* at 20–21, 183, 199.
[138] *Eastern Indigo Snake* at 4-572.
[139] ECMSHCP at 20–21.
[140] *Id.*
[141] *Eastern Indigo Snake* at 4-580.
[142] ECMSHCP at 136.
[143] *Id.* at 137.
[144] *Eastern Indigo Snake* at 4-579, 4-581.

successfully move from one "fragment" of habitat to another, the isolation will eventually affect the species' fundamental population and community dynamics (Andrews 2005). Further, because snakes are a maligned group of animals, the increased visibility of snakes on roadways will subject them to increased intentional killing by humans.[145]

Recognizing "irreparable landscape alteration from the nation's transportation infrastructure," Andrews and Gibbons (2005) investigated the behavior of various species of snake near roads.[146] The study showed the eastern racer (*Coluber constrictor*), a species of snake that shares the subfamily Colubrinae with the eastern indigo snake, readily crosses roads.[147] Though this information suggests lower risk of habitat fragmentation from road avoidance; it also suggests higher likelihood of road mortality, which would contribute to population reduction and genetic isolation.[148] The study also concluded that snake species with higher mass-to-length ratios (thick-bodied snakes) are more likely to cross roads at a slower rate of speed, subjecting them to a higher risk of road mortality when they cannot cross quickly enough to avoid collision.[149] The scientists found that even snakes that rely on rapid flight to escape predators (e.g., *Coluber constrictor*) exhibited higher immobilization responses to oncoming vehicles than hypothesized (Fahrig 2009).[150] Because eastern indigo snakes are heavy-bodied snakes of a subfamily that is more likely to cross roads, there is potential for great harm from increased roadways and traffic. Additionally, because eastern indigo snakes range over large areas (as far as 224 hectares), they are more likely to encounter roads and the risk of direct mortality or isolation.[151]

Road development and urbanization can also lead to negative population-level impacts, such as skewed population structure via altered sex ratios and composition of age classes and restricted gene flow that results in decreased genetic diversity (Andrews 2008). The negative impacts of these effects may take decades to become apparent,[152] at which point it may be too late to remedy them.

Breininger et al. (2012) have concluded that habitat fragmentation is likely a critical factor for the eastern indigo snake's persistence and that eastern indigo snakes are vulnerable to extinction in conservation areas bordered by roads and developed areas. Though the snake's chances of survival can be quite high in conservation core areas, its survival rates significantly decline in conservation areas along highways and in suburbs.[153] More than half of known snake mortalities documented in the study were caused by humans, directly or indirectly, along roads.[154] In light of this study, FWS should consider whether the designated "preservation/plan-wide activities" areas truly provide sufficient refuge for eastern indigo snakes such that they will not be at risk from road-related mortality and human-snake conflict. Many of the areas designated for preservation are small and isolated, which suggests they are not be sufficient to appropriately conserve the

[145] *Id.*
[146] *Id.*
[147] *Id.*
[148] *Id.*
[149] *Id.*
[150] *Id.*
[151] *Id.* at 4-571–4-572.
[152] *Id.*
[153] *Id.*
[154] *Id.*

species. Additionally, FWS should consider whether "corridors" between protected areas are wide enough to provide adequate protection for eastern indigo snakes.[155]

When assessing the ECMSHCP's impacts on eastern indigo snake habitat, FWS should not only consider broad habitat types used by the eastern indigo snake (e.g., upland habitat) but also availability of essential microhabitat required by the species. For example, Hyslop et al. (2009) found that "[r]eduction in suitable underground shelters caused by habitat degradation and loss, which reduces or eliminates populations of [gopher tortoise], is likely an important factor in extirpation of the species from areas *otherwise perceived as suitable habitat*."

FWS should also consider additional alternatives to the measures set out in the ECMSHCP, including measures to avoid impacts to the eastern indigo snake, such as siting covered activities outside of the most valuable indigo snake habitat and conducting construction and agricultural activities outside of the seasons when the snakes are most active.[156]

### I. Gopher Tortoise

The gopher tortoise is a federal candidate species under the ESA and a highly valuable "keystone species" that benefits and ensures the survival of other species in its ecosystem.[157] This tortoise is known to benefit over 300 different species, including eastern indigo snakes, foxes, skunks, and lizards, which use gopher tortoise burrows for shelter and for various parts of their lifecycles.[158] The gopher tortoise is generally found in longleaf pine or oak sandhill ecosystems, but it may also be found in other dry, upland habitats within its historic range.[159]

The greatest threat to the gopher tortoise is habitat destruction, including habitat fragmentation and degradation, caused by urban development, agricultural conversion, forestry, and mining.[160] Habitat fragmentation can lead to reproductive isolation, increased predation due to exposed habitat edges, and mortality resulting from vehicular collisions.[161]

When considering the impact of the ECMSHCP on gopher tortoise populations, FWS must carefully analyze anticipated take and weigh that against the conservation measures proposed by the applicants. First, FWS must determine an accurate accounting of take. The ECMSHCP states that covered activities will lead to take of gopher tortoises in the form of harm and harassment through "permanent conversion of primarily agricultural lands, and lower proportions of native

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[155] *See Id.*
[156] *See Id.*
[157] U.S. Fish & Wildlife Service, *Range-Wide Conservation Strategy for the Gopher Tortoise*, U.S. DEPT. OF INTERIOR, 4, http://www.fws.gov/southeast/candidateconservation/pdf/FinalGopherTortoiseStrategy.pdf [hereinafter *Conservation Strategy for Gopher Tortoise*].
[158] *Id*.
[159] U.S. Fish & Wildlife Service: North Florida Ecological Services Office, *Gopher Tortoise* (*Gopherus polyphemus*), U.S. FISH & WILDLIFE SERVICE, http://www.fws.gov/northflorida/gophertortoise/gopher_tortoise_fact_sheet.html .
[160] *Conservation Strategy for Gopher Tortoise* at 9; NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia, http://www.natureserve.org/explorer.
[161] *Conservation Strategy for Gopher Tortoise* at 9.

land cover types, up to a maximum of 45,000 acres."[162] This statement is vague and does not fully capture the level of take that will occur for several reasons. First, it does not quantify the conversion of native land-cover types within the covered area, which the gopher tortoise requires for essential biological functions including feeding, reproduction, and burrowing for shelter. Second, the ECMSHCP's statement that the extent of gopher tortoise habitat destruction could measure anywhere from 0 and 45,000 acres is too broad to assess potential take. Finally, the ECMSHCP's assessment contains no data on current locations of gopher tortoises within the plan area.

FWS should also closely analyze the conservation measures set out in the ECMSHCP, which are insufficient in their current form to address negative environmental impacts to the gopher tortoise. The ECMSHCP contains three conservation goals for the species:

1. "Determine presence/absence of gopher tortoise within Covered Activities on a project-by-project basis";
2. "Preservation of native gopher tortoise habitats within the areas designated for Preservation/Plan-Wide Activities and Very Low Density Use"; and
3. "Potential relocation of gopher tortoises to suitable recipient sites within the areas designated for Preservation/Plan-Wide Activities and Very Low Density Use under the Plan."[163]

As stated, these goals are not strong enough to guarantee the covered activities will not lead to significant negative environmental impacts and ultimately jeopardy for the gopher tortoise. Gopher tortoise surveys should not be fragmented and deferred to the times that individual projects begin because such methods will lead to results that do not capture the cumulative impact of the projects within the plan area. Surveying should occur now, as the applicants form their conservation plan, so that the overall gopher tortoise take associated with the ECMSHCP can be accurately measured and analyzed. Failing to survey at this time will lead to inaccurate assessments of take and other environmental impacts, which are required under the ESA and NEPA.

The ECMSHCP's habitat-based conservation goal is also weak and does not guarantee the overall activities in the HCP will not jeopardize the gopher tortoise's existence. Although the ECMHCP estimates than 13,022 acres of native upland habitat will be designated "Preservation/Plan-Wide Activities" and "Very Low Density Use," it fails to disclose how much of the 13,022 acres currently supports or is capable of supporting gopher tortoises.[164] Moreover, many of the proposed uses for the land designated Preservation/Plan-Wide Activities and Very Low Density Use are contrary to the needs of the species and negate all conservation value for the gopher tortoise. The plan permits "preservation land" to be used for crop cultivation, ranching and livestock operations, forestry and silviculture, recreation, and oil and gas exploration and production.[165] Land designed for Very Low Density Use may be developed for isolated residences, lodges, and hunting or fishing camps.[166] Certainly developing land for

[162] ECMSHCP at 187.
[163] *Id.* at 200–201.
[164] *Id.*
[165] *Id.* at 20.
[166] *Id.* at 21.

residences and agriculture is not consistent with maintaining habitat for gopher tortoises. As the plan acknowledges, gopher tortoises require open, frequently burned longleaf pine or longleaf pine-scrub oak uplands and flatwoods with well-drained or xeric soils.[167] Without this type of habitat, gopher tortoises are unable to burrow, which frustrates their normal feeding, breeding, and sheltering activity.[168] The plan also recognizes that the main threat to gopher tortoises is conversion of their xeric habitat to development, agriculture, and mining.[169] Additionally, the term "recreation" is undefined in the plan, making it vague enough to include land uses that are harmful to herpetofauna, such as use of off-road vehicles. In light of the uncertain conservation measures and inappropriate uses of land designated for preservation, the ECMSHCP fails to minimize and mitigate impacts to the gopher tortoise such that it will not be placed in jeopardy by the project. FWS should consider the impacts of the proposed uses for land designated Preservation/Plan-Wide Activities and Very Low Density Use. FWS should also consider alternatives to the suggested uses, including an alternative which calls for complete preservation (no significant human activity) on land not designated for covered activities.

Finally, the ECMSHCP's relocation measures are vague and potentially meaningless because of the realities of the proposed land uses. The plan specifically calls for "relocation of gopher tortoises from Covered Activities areas to long-term recipient sites within the areas designated for Preservation/Plan-Wide Activities."[170] As discussed above, it is unclear how much of this land is actually valuable for tortoise conservation. FWS should consider the true feasibility of relocating tortoises within the ECMSHCP area, taking into account that breeding populations or colonies of tortoises require suitable, unfragmented habitat that allows them to burrow within 600 feet or less of one another.[171] Moreover, FWS should study whether relocation is truly in the conservation interests of gopher tortoises, considering the potential for successful relocation of populations, any negative impacts of relocation on tortoises, and availability of habitat. For instance, relocating tortoises could potentially spread upper respiratory tract disease into otherwise healthy populations.[172] The ECMSHCP relies heavily on gopher tortoise relocation and mitigation.[173] FWS should consider alternatives that avoid harming gopher tortoises or converting their habitat.

Generally, FWS should consider the special needs of gopher tortoise. Simply protecting land for panthers—or any other species—will not guarantee protection for the particular environmental attributes required by tortoises. Land use and land-management practices are key determinants of gopher tortoise burrows and their abandonment (Baskaran 2006). Proximity to farming, urban development, and roads can be detrimental, subjecting gopher tortoises to road kills and death by agricultural machinery.[174] Additionally, FWS should consider the feasibility of prescribed burns, as the covered activities in the ECMSHCP will lead to increased interface between urban and

[167] *Id.* at 148.
[168] *Id.*
[169] *Id.* at 151.
[170] *Id.* at 201.
[171] *Id.* at 150.
[172] Florida Fish and Wildlife Conservation Commission, *Gopher Tortoise Management Plan:* Gopherus polyphemus, 7, http://myfwc.com/media/2286685/GT-Management-Plan.pdf [hereinafter *Gopher Tortoise Management Plan*].
[173] ECMSHCP at 187, 201.
[174] *Id.*

suburban areas and natural "preserve" areas. Prescribed burns are necessary to maintain the open pine habitat gopher tortoises require, and fire suppression could have irreversible negative effects on tortoises,[175] even if they are moved to undeveloped areas. FWS should also consider the potential for introduction of invasive plant species from urban and suburban landscaping and harmful introduced predators, as historically invasive species have had a serious impact on gopher tortoises.[176]

Finally, FWS should consider the multifaceted impacts of the growing network of roads and increased traffic that will result from the activities proposed in the ECMSHCP. Aside from exposing tortoises to increased road kills (Baskaran 2006), roads will fragment otherwise suitable gopher tortoise habitat. Additionally, road development facilitates human access into otherwise less accessible gopher tortoise habitat, which will potentially lead to increased gopher tortoise harvest, collection, or direct killing.[177]

### J. Eastern Diamondback Rattlesnake

The eastern diamondback rattlesnake is currently under consideration for federal ESA listing after receiving a positive 90-day finding on May 10, 2012.[178] Though the eastern diamondback rattlesnake's range once encompassed the Coastal Plain of the southeastern United States from North Carolina to south Florida, and west to Mississippi and the Florida parishes of Louisiana; its area of occupancy, number of subpopulations, and population sizes are declining throughout its range.[179] This contraction in the snake's range is largely attributable to loss of its native longleaf pine ecosystems to agriculture, silviculture, urbanization, and plant succession resulting from fire suppression (Timmerman 2003). Florida encompasses half of the eastern diamondback rattlesnake's current range,[180] which makes habitat preservation in this state critical to the species' survival. The eastern diamondback rattlesnake's survival is also crucially linked to the presence and welfare of the gopher tortoise, whose burrows provide essential microhabitat for the snake to use for shelter.[181]

Today the most significant threats to the eastern diamondback rattlesnake are habitat destruction and human exploitation. The species has sustained a 97% reduction in its native, longleaf-pine forest habitat, on which it relies for feeding, breeding, and sheltering (Van Lear 2005). This loss of longleaf pine ecosystems is the single most important factor affecting the survival of the eastern diamondback rattlesnake. Fragmentation of remaining suitable habitat also leads to road mortality, population isolation, and reduced genetic diversity, which is detrimental to the species' long-term viability (Andrews and Gibbons 2005 at 779). Rattlesnakes are particularly vulnerable to vehicle strikes because of their morphology and behavior. A study conducted by Andrews and Gibbons (2005) shows that venomous, heavy-bodied snakes like the eastern diamondback rattlesnake experience detrimentally high mortality levels even at medium traffic

[175] *Gopher Tortoise Management Plan* at 6.
[175] *Id*.
[176] *Id.*
[177] *Id.*
[178] 77 Fed. Reg. 27403–27411 (May 10, 2012).
[179] Natureserve.
[180] *Id.*
[181] *Id.*

densities because, unlike other species of snake, they move at slow speeds and immobilize when confronted with vehicles.

Eastern diamondback rattlesnakes are also threatened by human exploitation. Thousands of snakes are killed each year for meat, skin, and venom, with no limits on annual harvest (Means 2009). "Rattlesnake roundups," annual events that offer hunters prizes for capturing snakes, which are displayed and then killed, boost snake kills and foster negative attitudes that venomous reptiles like the rattlesnake are repugnant and must be removed from nature (Andrews and Gibbons 2005). Means (2009) collected data from these roundups, analyzed trends, and concluded that declining maximum size of snakes collected during roundups reflects possible age-class truncation.[182] This troubling trend could lead to negative impacts on annual recruitment of young rattlesnakes, which in turn undermines the snake's ability to maintain viable populations (Means 2009). Because of negative attitudes toward rattlesnakes, the eastern diamondback is also at risk from isolated killings, independent of roundups, when snakes enter urban or suburban areas. Existing regulations are inadequate to address these significant threats to the eastern diamondback rattlesnake, so they are constantly at risk of human-caused mortality and may be taken in unlimited numbers.

As FWS considers the environmental impacts associated with the ECMSHCP, it should closely study the plan's potential impacts on the eastern diamondback rattlesnake, precisely estimate take associated with the project, and carefully consider more robust conservation measures than currently proposed in the plan, favoring use of avoidance measures over minimization or mitigation. In its current form, the ECMSHCP does not provide adequate data to accurately assess impacts to the rattlesnake. The ECMSHCP cites historical reports of eastern diamondback rattlesnakes within the covered area; however, it provides no specific information about population locations. FWS should study the occurrence of the eastern diamondback rattlesnake within the ECMSHCP area and determine what types of habitat are actually used by the species in that area. Additionally, it should determine whether proposed covered activities will disrupt any important populations.

The ECMSHCP also fails to specifically and accurately account for potential impacts to the eastern diamondback rattlesnake. For instance, it states that covered activities will destroy 2,247 of the snake's native upland habitat and estimates that approximately 13,022 acres of native upland habitat will be included in land designated Preserve/Plan-Wide Activities or Low Density Use.[183] However, as discussed in previous sections, activities proposed to be permitted on these "preserved" lands include activities that would be harmful to the snake, including development, agriculture, and silviculture. FWS and the applicants must analyze the impacts of these uses when considering the level of take caused by the HCP and assessing the overall conservation benefit to the species. Additionally, the plan's statement that "[t]he preserved native upland habitat acreage is more than five times the native upland acreage potentially impacted by covered activities" fails to acknowledge that the species will suffer a net loss of habitat regardless of the amount of land set aside for conservation. Further, the ECMSHCP also entirely fails to assess impacts from habitat fragmentation and road mortality associated with a growing network of roads needed to serve the new development, as well as increased traffic. Finally, the impacts of

[182] *Id.*
[183] ECMSHCP at 185–186.

habitat loss associated with the ECMSHCP should be considered in the context of global climate change and rising seas, which will invariably cause additional habitat destruction and fragmentation as human populations migrate inland.

FWS should also consider a wider and more effective range of alternatives when analyzing the ECMSHCP's proposed conservation measures. The ECMSHCP contains one species-specific conservation goal for the eastern diamondback rattlesnake: to "preserve" the snake's habitats within areas designated for Preservation/Plan-Wide Activities and Very Low Density Use. In light of the varied and harmful uses that will be permitted on these "preserved" lands, it is clear they will not be effectively preserved for the eastern diamondback rattlesnake. In light of the ECMSHCP's ineffective conservation measures, FWS should consider a wide range of other alternatives, focusing on avoidance over minimization and mitigation.

### K. Florida Bonneted Bat

FWS listed the Florida bonneted bat as an endangered species under the ESA in 2013.[184] There is still much to be learned about the long-term habitat needs, life cycle, and general ecology of this endangered species, but based on the needs of other similar bat species, FWS posits that the bonneted bat would find prime foraging habitat near "open, fresh water wetlands," and that the species "will forage over ponds, streams, and wetlands."[185] The bonneted bat historically is found in longleaf pine trees and is dependent on forested areas for roosting; however, the species has also been found roosting in palm trees.[186] FWS has indicated that the bonneted bat is found within Collier County, where the ECMSHCP is located.[187] Recently, a pine snag was found to support one of the only known natural bonneted bat roosts at the Florida Panther National Wildlife Refuge which is located directly adjacent to the RLSA area.

The greatest threats to the survival of the bonneted bat are mainly anthropogenic threats, such as habitat destruction, fragmentation, and degradation closely linked to various types of development and agriculture.[188] It is anticipated that climate change and sea level rise will both negatively impact the species, which is already suffering from limited suitable habitat.[189]

Additionally, FWS reports that bonneted bat roost sites have been found at 23 to 26 colony sites at 11 locations, as summarized in the table below.

| **Location of roost sites** | **Number of colonies** |
|---|---|
| Babcock-Webb WMA | 4 to 6 |
| Babcock Ranch | 2 |

[184] Everglades Nat'l Park, *Florida Bonneted Bat*, NAT'L PARK SERV., http://www.nps.gov/ever/learn/nature/flbonnetedbat.htm [hereinafter *Florida Bonneted Bat*].
[185] *Endangered and Threatened Wildlife and Plants; Endangered Species Status for the Florida Bonneted Bat*, 78 Fed Reg. 61004 (Oct. 2, 2013).
[186] *Id*. at 61007.
[187] Florida Fish & Wildlife Conservation Comm'n, *A Species Action Plan for the Florida Bonneted Bat* Eumpos floridanus, 4, http://myfwc.com/media/2738262/Florida-Bonneted-Bat-Species-Action-Plan-Final-Draft.pdf (Nov. 1, 2013).
[188] *Florida Bonneted Bat*.
[189] *Id*.

| | |
|---|---|
| North Fort Myers | 2 |
| Naples | 1 |
| Fakahatchee Strand Preserve SP | 2 to 3 |
| Big Cypress National Preserve | 3 |
| Everglades City | 1 |
| Everglades National Park | 1 |
| Ten Thousand Islands | 1 |
| Homestead | 1 |
| Coral Gables/Miami | 4 |

Seven of the 11 roost site locations are on the Florida coast, and two additional locations (Everglades National Park and Big Cypress National Preserve) are extremely low-lying areas that are highly vulnerable to sea-level rise. Based on NOAA's Sea Level Rise and Coastal Flooding Impacts Viewer,[190] nine of the 11 roost locations will be either fully or partially inundated under this range of sea-level rise. Four locations would be largely or completely inundated starting at one foot of sea-level rise, threatening the five to six colonies they support within the next few decades: Fakahatchee Strand Preserve State Park, Everglades City, Everglades National Park (Long Pine Key), and Ten Thousand Islands area. Five other locations would be partially inundated at levels of one to six feet, putting 11 more colonies at risk: Homestead, Miami/Coral Gables, Big Cypress National Park, Naples, and North Fort Myers. Only two locations which support six to eight colonies would not be directly affected: Babcock-Webb WMA and Babcock Ranch. This analysis highlights the extreme vulnerability of bonneted bat roosting habitat to sea-level rise.

Additionally, it is likely that the forested areas on which bonneted bats depend may retreat. Florida bonneted bats have been known to roost in longleaf pine flatwoods and in the shafts of royal palms. It is thought that forested areas and old, mature trees are essential roosting habitat for the species, as well. A case study on coastal forest retreat at Withlacoochee Gulf Preserve in Yankeetown, Florida found that the coastal forest is retreating as salt water intrudes freshwater at an estimated rate of seven meters per year over the last 100 years (Williams et al. 2003). Therefore, even before coastal forest areas are totally inundated, they can experience significant ecological changes.

The applicant simply has not acquired sufficient data to provide a full picture of environmental impacts to the bonneted bat. Furthermore, the Service is currently considering critical habitat designation for this species. The Service should take no action on the ECMSHCP until the critical habitat has been determined for this species.

## IV. Compliance with the Endangered Species Act

### A. The Service must require the applicants to provide detailed information related the impacts covered by the ITP and HCP.

[190] http://www.csc.noaa.gov/digitalcoast/tools/slrviewer

The greatest concern with the ECMSHCP is that it lacks the necessary information to determine what impacts will result from the planned activities within the permit area. The document merely provides general statements and indications that many actions taken to enhance, restore, conserve, or mitigate habitat for the protected species will be dependent upon unspecified future actions or impacts.[191] A permit applicant is "encouraged to include in the HCP a description of all actions within the planning area."[192] Here, the applicant's overgeneralization of the impacts has failed to paint a picture of the effects of these activities on both to the listed species and habitat.

Additionally, the applicant has not provided any specific information regarding the amount of take anticipated to result from the proposed activities. Thus, the proposed take is too general to meet the requirements for an ITP and HCP under the ESA. An ITP and corresponding HCP are required by law to include:

> (i) A complete description of the activity sought to be authorized;
>
> (ii) The common and scientific names of the species sought to be covered by the permit, as well as the number, age, and sex of such species, if known;
>
> (iii) A conservation plan that specifies:
>
> > (A) The impact that will likely result from such taking;
> >
> > (B) What steps the applicant will take to monitor, minimize, and mitigate such impacts, the funding that will be available to implement such steps, and the procedures to be used to deal with unforeseen circumstances;
> >
> > (C) What alternative actions to such taking the applicant considered and the reasons why such alternatives are not proposed to be utilized; and
> >
> > (D) Such other measures that the Director may require as being necessary or appropriate for purposes of the plan . . . .[193]

After considering the statutory and regulatory elements required for an ITP application and HCP, it is clear that the applicants fail to provide a complete account of the proposed activities and sufficient information related to the number, age, and sex of the listed species to be included in the permit. The applicants also fail to include sufficient information related to the anticipated take for all listed species under the permit, as well as detailed steps that the applicant will take to monitor, minimize, and mitigate, the impacts. There simply is not enough information in the ECMSHCP to satisfy the requirements for an ITP and its corresponding HCP as set forth under the Section 10(a)(2)(A) of the ESA and the corresponding regulations.

An applicant for an ITP and HCP are to include a description of the activities that will be covered by the permits.[194] The description of the activities should include those: (1) likely to cause incidental take of a listed species; (2) "reasonably certain" to arise during the existence of

[191] *See, e.g.*, ECMSHCP at 64, 80, 196–200, 204–205.
[192] US Fish & Wildlife Service, Nat. Marine Fisheries Service, *Habitat Conservation Planning & Incidental Take Permit Processing Handbook*, 3-12 (1996) [hereinafter *Habitat Conservation Planning Handbook*].
[193] 50 C.F.R. § 17.22(b)(1)
[194] *Habitat Conservation Planning Handbook* at 3-12.

the permit and (3) are somewhat within the applicant's control.[195] The proposed ECMSCHP does not describe the activities that will be covered by the ITP or what portions of the 107,000 acres such activities will occur, instead, the applicant vaguely provides it will determine what, if any conservation measures it will undertake, depending upon the specific project impacts.[196] The applicant has not provided detailed information to determine what activities the permits will cover and nor does it provide an estimate of the number of acres the activities will affect or the individuals of each listed species that will be impacted.

A major concern with the ECMSHCP is the "plan-wide activities" to be covered by the MSHCP which "are planned to continue,"[197] including: agricultural activities such as crop production and ranching; infrastructure repair and maintenance, in addition to those associated with new development; oil and gas exploration and production; passive recreation and recreation which includes the use of off-road vehicles, hunting, and fishing; and local, regional, and intrastate transportation activities.[198] The nature of these ongoing activities will negatively impact the survival of the panther and other covered species and defeat the underlying purpose of the ECMSHCP. A conservation plan as "required by section 10(a)(2)(A) of the ESA" is defined as an "area explicitly designated for habitat restoration, acquisition, protection, or other *conservation purposes* under a conservation plan."[199] FWS should require clarification as to the total area that will be impacted from the permitted activities and confine such impacts to the 45,000 acres within the development cap indicated in the ECMSHCP.[200] The activities identified in the plan as ongoing are *not* consistent with the conservation needs of the species as set forth in their individual recovery plans or as required by the ESA.

**B. The Service must quantify and assess the amount of take and habitat loss it has authorized to date and analyze the affect it has had on the species as well as the affects that additional take and habitat loss will cause.**

Prior to authorizing an ITP or approving the corresponding HCP, FWS shall engage in formal consultation with itself to ensure that the species will not be jeopardized upon approval of the permits.[201] When FWS undergoes formal consultation, it shall provide information related to: 1) the action to be considered; 2) the specific area that will be affected by the action; 3) a description of the threatened and endangered species and/or critical habitat that may be affected by the action; 4) a description of the effects the action may have on the listed species, critical habitat, and an analysis of any cumulative effects; 5) relevant reports including biological assessments and/or environmental impact statements that have been prepared related to the action; and 6) and any relevant information related to the listed species, critical habitat, and proposed action.[202]

[195] *Id*.
[196] ECMSHCP.
[197] *Id*. at 20–21.
[198] *Id*.
[199] 50 C.F.R. § 17.3
[200] ECMSHCP.
[201] *Id.* § 402.14(c).
[202] *Id.* § 402.14(c)(1–6).

Here, it is clear that the proposed action, the authorization of an ITP and the approval of a corresponding ECMSHCP, will have adverse effects on the several threatened and endangered species. When considering the adverse effects, FWS must quantify the amount of take and habitat loss that it has authorized to date and analyze the impact of those authorizations on the survival and recovery of the species.[203]

Habitat in South Florida is in high demand for endangered species and developers alike. In South Florida, the population density has been higher than the statewide average since 1960 and in 2010 was estimated to reach 8.2 million people.[204] As the South Florida population has increased, the pressure on endangered and threatened species and their habitats has also increased.[205] In the past 50 years, it is estimated that more than 8 million acres of forest and wetlands have been cleared for development.[206] Nearly all habitat types in South Florida have been devastated by South Florida's population boom. For example, less than 10 percent of tropical hardwood hammock habitat remains and almost 65% of xeric habitats such as sandhill, scrubby flatwoods, and scrub habitats along the Lake Wales Ridge has been lost or detrimentally impacted.[207] Only approximately 33 percent of upland habitats have been left in the wake of development, but of those remaining, many are "stressed and fragmented."

The aforementioned South Florida species are dependent on these habitat types for their survival. As such, FWS must examine the cumulative impacts of the take and habitat loss they have previously authorized to determine their effects on these species' recovery.

## V. Conclusion

The applicants' proposed ECMSHCP has the potential to impact eight federally-protected species, two candidate species, and six state-protected species in a variety of ways: it will further fragment, degrade, and destroy important habitat for these species making it difficult for each of them to shelter, feed, and reproduce; it may disrupt the slow and fragile recovery of the species—such as the critically endangered Florida panther; it may increase the mortality of these species as the result of vehicular collisions; it may increase the tension between these species and the area's human population—such as with the northern crested caracara, eastern indigo snake, and Florida panther; and it could lead to other unforeseen and unexpected impacts to species we have such little information about—such as the Florida bonneted bat. For these reasons and many others stated above, we request that you do not authorize the take of any of these species as proposed in the ECMSHCOP: the Florida panther, Florida scrub jay, northern crested caracara, wood stork, red-cockaded woodpecker, Everglades snail kite, Florida bonneted bat, eastern indigo snake, gopher tortoise, or Eastern diamondback rattlesnake. Please do not hesitate to contact me at (727)490-9190 or jlopez@biologicaldiversity.org with any questions about this comment letter.

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[203] *See Id.* § 402.14.
[204] *The South Florida Ecosystem*, U.S. FISH & WILDLIFE SERV., 2-19, http://www.fws.gov/verobeach/msrppdfs/sfecosystem.pdf.
[205] *Id*. at 2-25.
[206] *Id.*
[207] *Id*.

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